



Contracting

## SERVICE CONTRACTS

This manual implements AFPD 64-1, *The Contracting System*, and the requirements of Federal Acquisition Regulation (FAR) Parts 3, 10, 37, and 46, regarding specification preparation, inclusion of deduction schedules, and quality assurance requirements for service contracts. It establishes a systematic process for developing:

- A performance work statement (PWS) with measurable performance standards.
- The basis for payment for only those services meeting established standards.
- A quality assurance surveillance plan (QASP).

It prescribes procedures for doing quality assurance evaluation during contract performance. This manual assigns responsibilities for and applies to commanders and contracting and functional area personnel that are involved in all facets of service contracting. For purposes of this manual, the term "squadron" is synonymous with "numbered flight."

### SUMMARY OF REVISIONS

This is the first publication of AFMAN 64-108. It replaces AFR 70-9, AFR 400-28, and AFP 400-29. This manual is applicable to all service contracts, not just base-level service contracts (paragraph 1.4); includes quality assurance surveillance program requirements previously contained in AFR 70-9 (paragraphs 1.3, 1.4, 1.5, 4.2, 4.3, and 4.5; figure 4.2; and chapter 6); clarifies the conditions under which payments and payment deductions (according to the formula) are authorized and calculated (paragraphs 2.11 and 6.3, and Technical Exhibit 1, paragraphs 4 and 5); and makes obsolete AF Form 1129A, **Random Sampling Schedule and Tally Checklists** 1 through 3, and AF Form 1130A, **Daily Surveillance Checklist**.

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## **Chapter 1**

### **SERVICE CONTRACTS**

**1.1. Terms and Definitions.** Terms, as used in this manual, are defined in attachment 1.

#### **1.2. Overview:**

1.2.1. The Federal Acquisition Regulation (FAR) requires that service contract specifications reflect the minimum needs of the Government, be expressed in terms of performance requirements with associated standards of performance of these requirements, have preplanned quality assurance procedures tailored to the contract requirements, and provide the means to make sure we receive the services we pay for. Additionally, the specification of requirements must be consistent throughout the Air Force to the maximum extent practicable.

1.2.2. The Inspection of Services clause (FAR 52.246-4 for fixed-price or FAR 52.246-5 for cost-reimbursement contracts), required in all service contracts, provides for the Government's right to inspect and test all services called for by the contract and specifies what actions the Government may take when the services do not conform to contract requirements. Government remedies for nonconforming services:

- Require the contractor to re-perform the service at no additional cost.
- Require the contractor to take action to make sure future performance conforms and reduce the contract price to reflect the reduced value of the

services performed if the service cannot be re-performed.

- If the contractor fails to re-perform after being directed to do so or does not take action to assure future performance conforms, the Government may have the service performed by other means and charge the costs to the contractor or pursue termination for default. Re-performance of nonconforming services is the preferred course of action because we want the service. As a practical matter, however, re-performance of many contracted services does not meet our needs. For example, in a food service attendant contract, a required task is to have the food lines set up for serving at a specified time. If the contractor fails to meet that requirement, there is no way that he or she can re-perform that task because the time for its performance has past. Because so many service contracts contain tasks that either cannot be re-performed or re-performance is of no value to the Government, service contracts must contain provisions for reducing contract amounts for nonconforming services when re-performance is not possible or is impractical.

### 1.3. Requirements To Be Met:

1.3.1. Installation commanders who command contracting squadron personnel that award or administer service contracts or functional area personnel responsible for contracted service functions must establish and maintain a Quality Assurance Evaluation Program (QAEP).

1.3.2. Specifications for service requirements to be contracted (hereafter referred to as Performance Work Statements [PWS] ), must be prepared according to this manual. A PWS should be performance based and must not specify procedures for accomplishing required tasks unless absolutely necessary. Further, references to directives and publications, in whole or in part, must be minimal.

1.3.3. QASPs must be tailored to the PWS and set forth justifiable and defensible surveillance procedures to make sure we pay only for services that conform to the performance standards of the contract. The QASPs must be prepared in conjunction with the PWS for uniformity of requirements and followed during contract performance.

**1.4. Exemptions to the Use of This Manual.** This manual applies to all service contracts estimated to exceed \$25,000 annually that are either written or administered, or both, by Air Force personnel (except as specified elsewhere in this paragraph). When exemptions are made, as authorized in this paragraph, such written exemptions must specifically state which requirements are being exempted and why. If the exemption is directed to any regulatory requirements as opposed to procedural requirements, the exemption documentation must specifically state:

- The reasons why the policy cannot be followed.
- How it will ensure that the requirements are for the minimum needs of the government.
- How it will be determined that contract requirements have been met if standards are not included in the specification.
- What procedures (commonly referred to as an alternative surveillance plan) will be followed to make sure the government receives the services it pays for. The alternative surveillance plan must be approved by the procuring contracting officer (PCO) before the exemption is formally requested. Exemptions must be kept in the official contract file to which they apply.

1.4.1. Contract or PWS provisions providing for reduction in payment for services not meeting contract standards do not apply to cost type contracts.

1.4.2. Provisions providing for reduction in payment for unacceptable performance are recommended in fixed price incentive or award fee contracts. Decisions regarding the use of these provisions by the contracting officer and the functional area chief (FAC) must be documented in the contract file.

1.4.3. When contract requirements, PWS, or surveillance procedures are covered by other regulations, AFIs or similar guidance of major command (MAJCOM)-level or higher, such as for airlift contracts, packing and crating contracts, or higher level quality requirements (FAR 46.202-3), the other regulations, AFIs, or similar guidance prevail. However, such other guidance, or AFIs must comply with the FAR as implemented in this manual to the maximum extent possible.

1.4.4. When Air Force personnel award or administer service contracts which are written for other agencies, they must follow this manual to the maximum extent practicable, considering the other agencies' policies and procedures.

1.4.5. The requirements of this manual do not apply to the following types of agreements/contracts:

1.4.5.1. Cable television franchise agreements (however, a surveillance plan is required to ensure compliance with the Inspection of Services clause and other terms of the contract.

1.4.5.2. Utilities contracts.

1.4.5.3. Architect-engineering service contracts.

1.4.5.4. Contracts solely for equipment leases.

1.4.5.5. Education service agreements with established schools, colleges, universities, or other educational institutions for educational services using the institution's facilities, standard courses, and prevailing tuition and fees applicable to the general public.

1.4.5.6. Professional medical nonpersonal service contracts. HQ AFMSA/SGSLC will provide PWS's and QASP's for use in these contracts.

1.4.5.7. Personal service contracts.

1.4.5.8. Recurring service contracts when:

1.4.5.8.1. The requirement is not estimated to exceed \$200,000 annually, does not have a standardized PWS, and the FAC and Contracting Squadron Commander have determined, in writing, that specific requirements of this manual cannot be applied to the requirement.

1.4.5.8.2. The requirement is estimated to exceed \$200,000 annually, does not have a standardized PWS, and the MAJCOM FAC and the MAJCOM Contracting Division Chief have determined, in writing, that specific requirements of this manual cannot be applied to the requirement.

1.4.5.8.3. The requirement has a HQ USAF standardized PWS and the director of the HQ USAF functional area and the Deputy Assistant Secretary (Contracting) have determined, in writing, that the specific requirements of this manual cannot be applied to the requirement.

1.4.5.9. Nonrecurring service contracts when:

1.4.5.9.1. The requirement has a total estimated value of less than \$300,000 and the FAC and Contracting Squadron Commander have determined, in writing, that specific requirements of this manual cannot be applied to the requirement.

1.4.5.9.2. The requirement has an estimated value of \$300,000 or more and the MAJCOM FAC and MAJCOM Contracting Division Chief have determined, in writing, that the specific requirements of this manual cannot be applied to the requirement.

1.4.5.10. A class of service contracts, such as engineering technical services, when:

1.4.5.10.1. The class of service requirement is acquired exclusively by a single MAJCOM and the MAJCOM FAC and MAJCOM Contracting Division Chief have determined, in writing, that the specific requirements of this manual cannot be applied to the requirements.

1.4.5.10.2. The class of service requirement is acquired by multiple MAJCOMs and the HQ USAF functional area director and the Deputy Assistant Secretary (Contracting) have determined, in writing, that the specific requirements of this manual cannot be applied to the requirements.

## 1.5 Assigned Responsibilities:

1.5.1. The Deputy Assistant Secretary (Contracting)(SAF/AQC) shall provide advice and assistance to HQ USAF functional areas and MAJCOM contracting divisions in service contract matters, maintains manual, and coordinates with HQ USAF functional areas on PWSs, QASPs, and exemptions to this manual that are authorized under paragraph 1.4.

1.5.2. HQ USAF functional areas shall prepare, maintain, and disseminate to field activities standardized PWSs and QASPs for recurring service requirements to be contracted at installations of more than one MAJCOM, for obtaining SAF/AQC coordination on standardized documents, and prepare and coordinate exemptions to this manual according to paragraph 1.4.

1.5.3. MAJCOM Contracting Division Chiefs shall advise and assist MAJCOM functional areas and field contracting activities in service contract matters and coordinate with MAJCOM functional areas on PWSs and QASPs and exemptions to this manual that are authorized under paragraph 1.4.

1.5.4. MAJCOM FACs shall prepare, maintain and disseminate standardized PWSs and QASPs for requirements not covered by Air Force standardized packages that are to be contracted for at more than one of the MAJCOM's installations. MAJCOM FACs shall also obtain MAJCOM Contracting Division Chief coordination on PWSs and QASPs and prepare and coordinate exemptions to this manual according to paragraph 1.4.

1.5.5. Installation commanders shall implement the requirements of this manual at their installations and appoint Quality Assurance Evaluators (QAE) for contracts administered by personnel under the Commander's chain of command. Appointment of QAEs may be delegated no lower than the appropriate FAC.

1.5.6. Air Force Contracting Squadron Commanders and Chiefs of Air Force contracting offices shall:

1.5.6.1. Establish and maintain a QAEP to implement and oversee the requirements of this manual for the installation. As a minimum, the program must include policies and procedures for appointing QAEs, training QAEs, and periodic status briefings to commanders and FACs on the QAEP and specific service contracts. It is recommended that Contracting Squadron Commanders designate a Quality Assurance Evaluation Program Coordinator (QAEPC) to manage the installation QAE program. (The QAEPC position may be either a full or part time position.)

1.5.6.2. Train QAEs on QAE duties in general and on specific requirements of contracts to which they are assigned.

1.5.6.3. Advise and assist commanders and FACs in preparing PWSs and QASPs, conducting surveillance, and all other related service contract matters.

1.5.6.4. Coordinate with FACs on PWSs, QASPs, and exemptions to this manual as authorized under paragraph 1.4.

1.5.7. Installation level functional area chiefs shall:

1.5.7.1. Prepare or tailor standardized PWSs and QASPs according to HQ USAF and MAJCOM direction and obtain contracting officer coordination on the final product.

1.5.7.2. Prepare and coordinate exemptions to this manual according to paragraph 1.4.

1.5.7.3. Nominate to the commander, or appoint, if authorized by local procedures, qualified individuals as QAEs.

1.5.7.4. Ensure QAEs maintain proficiency in their functional areas.

1.5.7.5. Evaluate QAE job performance periodically, but not less than annually.

1.5.7.6. Ensure all personnel within the functional area who may have contact with contractor employees are aware of the contractual working relationship and the necessity to avoid any conduct that may constitute a real or perceived conflict of interest or allow the contractor to make claims against the government.

1.5.8. Contracting officers with cognizance over service contracts shall:

1.5.8.1. Advise and assist functional area personnel and QAEs in PWS and QASP preparation for contracts to be awarded or administered by the contracting officer.

1.5.8.2. Inform the contractor of the name, duties, and limitations of all QAEs who will perform surveillance of the contractor's performance.

1.5.8.3. Review, in coordination with the FAC, QAE, or both, the contractor's quality control plan for adequacy and notify the contractor of acceptability of the plan or deficiencies requiring corrective action. (**NOTE:** The contracting officer's acceptance of a contractor's QC plan does not relieve the contractor of the responsibility of complying with all the terms and provisions of the contract.)

1.5.8.4. Periodically assessing QAE performance during the course of the contract and advising the FAC, according to local procedures, of any problems with the QAE's performance.

1.5.9. The QAE shall:

1.5.9.1. Maintain technical competency in the functional area he or she surveys.

1.5.9.2. Obtain and maintain proficiency in contract surveillance procedures.

1.5.9.3. Understand all contract and surveillance requirements of the specific contracts he or she surveys.

1.5.9.4. Perform surveillance according to the QASP and provide documentation of surveillance observations to the contracting officer.

1.5.9.5. Calculate and certify acceptance of services in the manner prescribed by the contracting officer and this manual.

1.5.10. On request, legal officers at all levels are responsible for reviewing PWSs and QASPs for legal sufficiency.

1.5.11. Servicing Manpower offices, in conjunction with financial management and finance representatives when applicable, shall perform the functions specified in AFI 38-203 for requirements under the Office of Management and Budget Circular A-76 procedures and for helping in preparing PWSs and QASPs for all other requirements upon request.

**1.6. Service Contract Requirements Packages.** A requirements package for a service contract consists of a PWS and a QASP in addition to a purchase request, government cost estimate, and other locally required documents. The FAC is responsible for the requirements package. The PWS and QASP specify the requirements for the contractor and set forth the internal procedures for government technical surveillance of contractor performance. They are interdependent and must be tailored to meet the requirements of the government as well as the surveillance and administrative capabilities.

1.6.1. The PWS describes the specific requirements that the contractor must meet in the performance of the contract. Additionally, it specifies the standard of

performance for the required tasks and the quality level that the government expects the contractor to provide. It does not give specific procedures or instructions for accomplishing the work unless they are absolutely necessary. When the Air Force specifies a given procedure, it assumes responsibility for making sure the procedure will result in the desired output. On the other hand, if it specifies the output performance and a quality standard, the contractor becomes responsible for making sure their procedures result in the specified output at the required quality standard.

1.6.2. The quality control of a contractor's performance is the responsibility of the contractor, not the government. government surveillance of the resultant performance, however, is required to make sure we receive the services for which we contracted and only pay for the services we actually receive. The QASP specifies how government quality assurance surveillance of the contract tasks, as set forth in the PWS, will occur. This plan should be based on the minimum surveillance necessary to ensure performance according to the contract terms and that payment is made only for actual services received. If the contract prescribes deduction provisions for a task, the surveillance procedures for that task must specify either random sampling or 100-percent surveillance of the lot. QASPs must be carefully planned to make sure surveillance is adequate to protect the government's rights and interests but not be excessive. Quality assurance surveillance should be commensurate with the criticality of the service or task and the resources available to accomplish the surveillance.

1.6.3. The contracting officer must approve all PWSs and QASPs before they are accepted for contracting action. This approval is necessary to make sure the functional area has described their requirements clearly and unambiguously and that the PWS is contractible and legally enforceable.

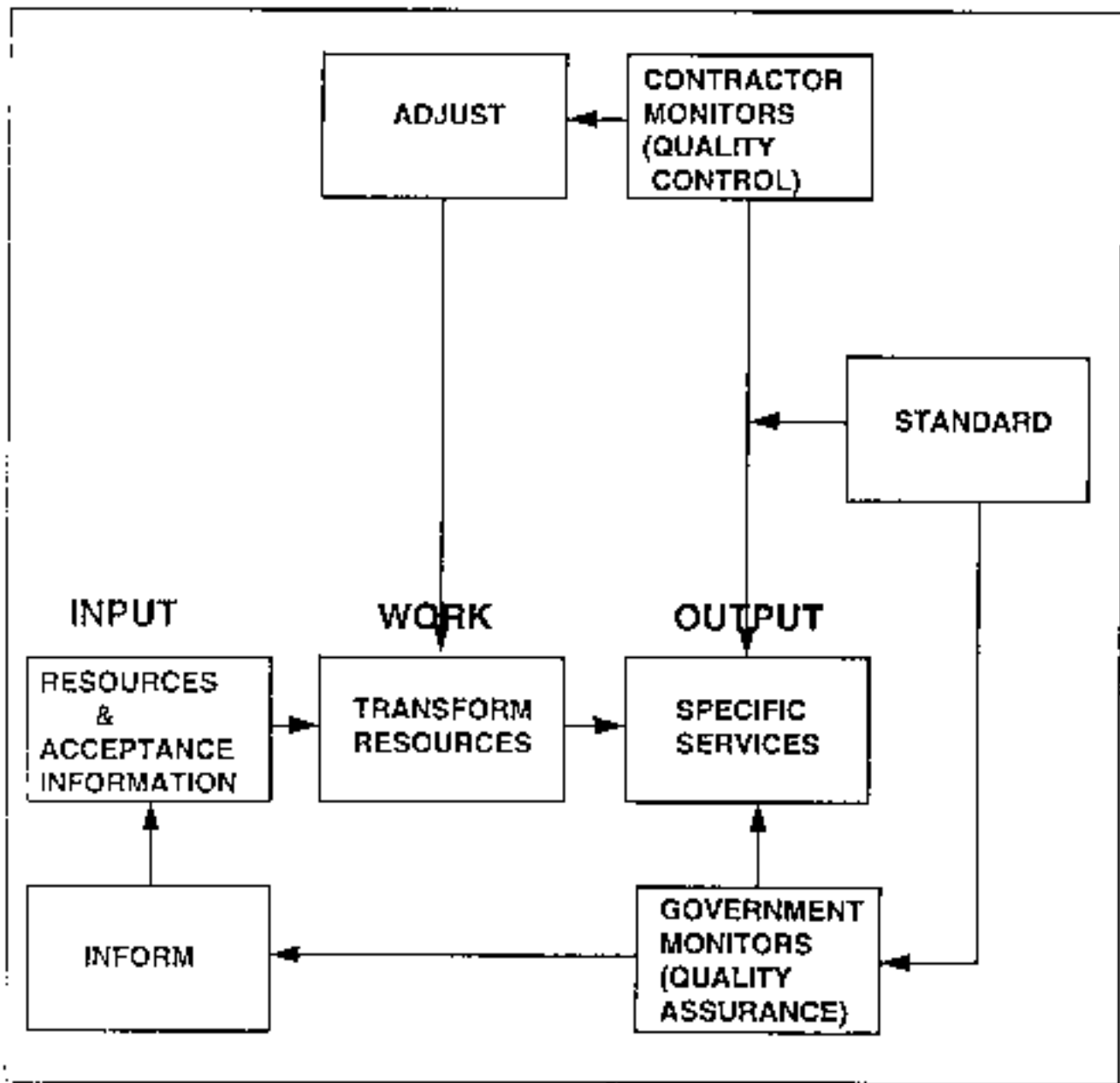
**1.7. Disposition of Records.** Records created and kept pursuant to this manual are disposed of as outlined in AFMAN 37-139.

## Chapter 2

### PREPARATION FOR WRITING THE PERFORMANCE WORK STATEMENT (PWS)

**2.1. A Systems Approach.** The design of a PWS and its accompanying QASP is based on a systematic analysis of the function. The procedure for deriving these two products is called job analysis. Job analysis consists of a step-by-step review of the requirement to arrive at the specific output services and associated standards. The definition of requirements for all types of services must begin with this process.

**2.1.1. Jobs as Systems.** For purposes of this job analysis procedure, assume that an operation is a system. An operation can be called a system because it consists of a job, or a combination of jobs for a certain purpose. The parts of a system are usually called input, work, output, and control loops. These parts are shown in figure 2.1.



**Figure 2.1. Contractor-Operated System.**

2.1.1.1. From a contractor's view, the system consists of taking people, facilities, material, and the PWS requirements and putting them into a work process. The result of this work is a contract output.

2.1.1.2. Two major control loops are at work in this system. Both loops use standards as the basis for determining acceptability. The contractor quality control loop feeds back information from the output into the work process so that the contractor can adjust performance to meet the standard specified. The Air Force quality assurance loop looks at the output and determines its acceptability. This information then becomes an input for

contractor management to use to adjust the quality control function.

2.1.2. **Parts and Subparts.** Every service operation can be viewed as a system. Further, each major system can be broken into small parts or subsystems. For example, if the system portrayed in figure 2.1 were called base-level transportation, the major system could be broken into small parts called vehicle operations, vehicle maintenance, and traffic management. Further, each of these parts could be broken down into the smaller parts or subparts that make up that part, as shown in figure 2.2.

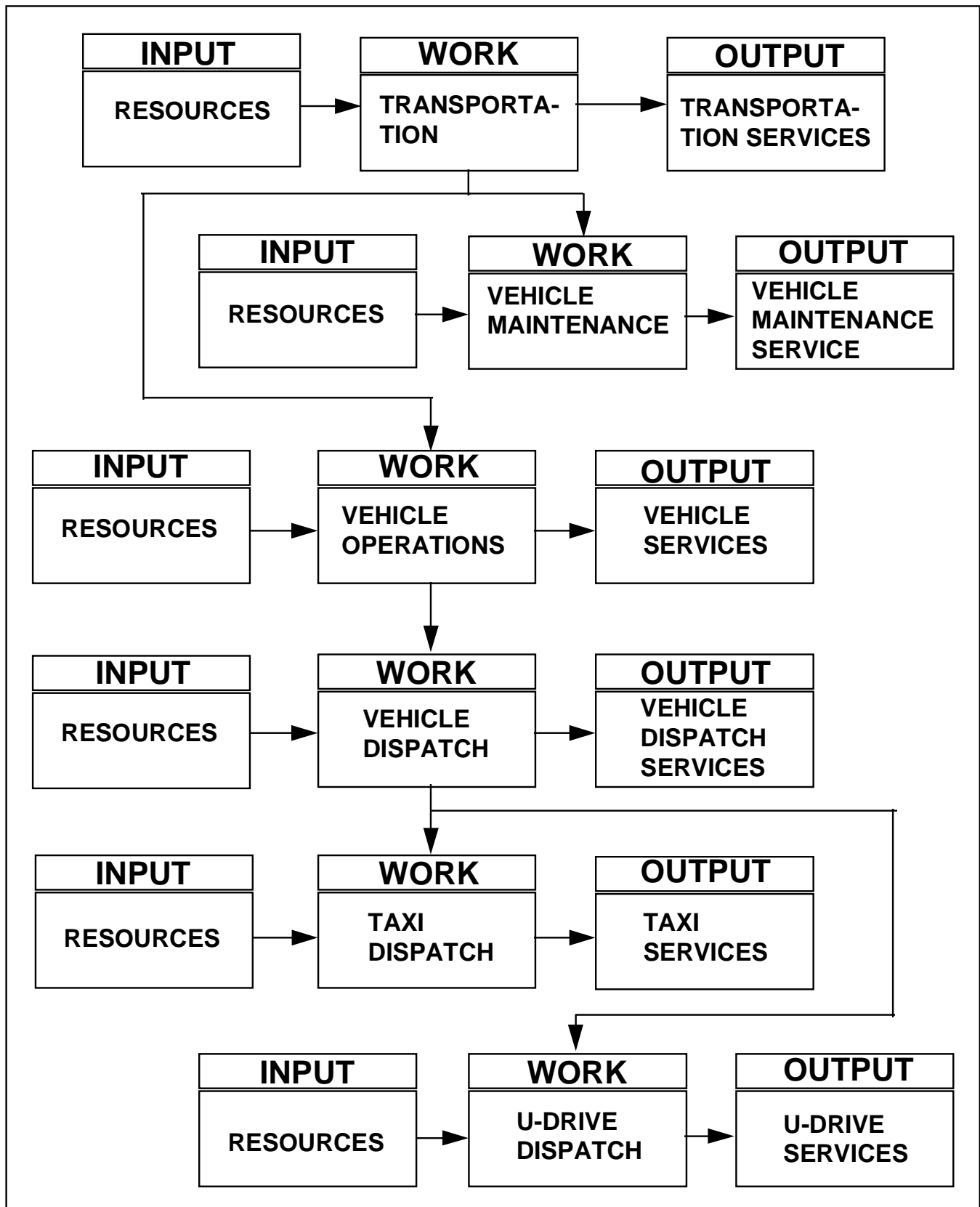


Figure 2.2. Base-Level Transportation.



2.1.2.1. Note that the transportation work area leads to vehicle operations, that leads to vehicle dispatch, that leads to taxi or U-drive dispatch. Each work area has its own set of inputs and outputs. This chart does not show all of the work areas associated with base-level transportation. Instead, it shows how a system can be broken into its parts.

2.1.2.2. The chart looks similar to a standard organizational chart, except that this chart shows each thing that happens rather than who performs the task. Further, by showing an input, it shows what must be there for something to take place. It shows that each job must have an output that can be measured in some way.

2.1.3. **Results of the Systems Approach.** View a proposed contract effort in a systematic way to arrive at a PWS and a means of measuring the service. Thus, a systematic analysis will result in an enforceable and clear PWS. It will also produce a QASP that, when followed, tells the Air Force if the service is furnished as specified. Further, the systems approach permits the analyst to identify outputs and separate them from the specific procedures needed to create the outputs. Lastly, systematic analysis gives a clear picture of what input is

needed to get the job done. This data is most useful in analyzing a contract bid or proposal, conducting a preaward, identifying government-furnished property, and making payment deduction decisions.

**2.2. Team Approach.** The development of a quality PWS is a result of a team effort of personnel from the functional area, contracting office, manpower office, and other organizations, as appropriate, for the specific functions being analyzed. During the contracting cycle, responsibilities shift depending on the stage of the cycle. The chart at figure 2.3 shows the major functions and the area of responsibility associated with each. Authority also shifts when a function is contracted out as shown in figure 2.4. Note that the functional area retains overall responsibility to see that the service is provided to the base if the function is contracted, but no longer has authority over actual performance of the function. By law, only a duly appointed contracting officer may enter into contracts and provide direction to contractors; therefore, the functional area must work through the contracting officer to meet its responsibilities for a contracted function.

<b>FUNCTIONS AND ACTIONS</b>	<b>FUNCTIONAL AREA</b>	<b>MANPOWER</b>	<b>CONTRACTING OFFICE</b>
<b>DEFINE</b>			
Prepare PWS	Responsible	Assist	Assist
Prepare QASP	Responsible	Assist	Assist
Perform Cost Comparison	Assist	Responsible	Assist
<b>SOURCE</b>			
Develop Sources	Assist		Responsible
Prepare Solicitation	Assist		Responsible
Conduct Prebid Mtg	Assist		Responsible
<b>BUY</b>			
Analyze Bids	Assist	Assist	Responsible
Conduct Preaward Survey	Assist		Responsible
Award Contract	Assist		Responsible
<b>ENSURE QUALITY</b>			
Technical Surveillance	Responsible		Assist
Request Modifications	Responsible	Assist	Assist
<b>ADMINISTER</b>			
Make Modifications	Assist		Responsible
Non-PWS Surveillance	Assist		Responsible
Conduct Meetings	Assist		Responsible
<b>RELEASE</b>			
Inspection	Responsible		Assist
Acceptance	Responsible		Assist

Figure 2.3. Responsibilities.

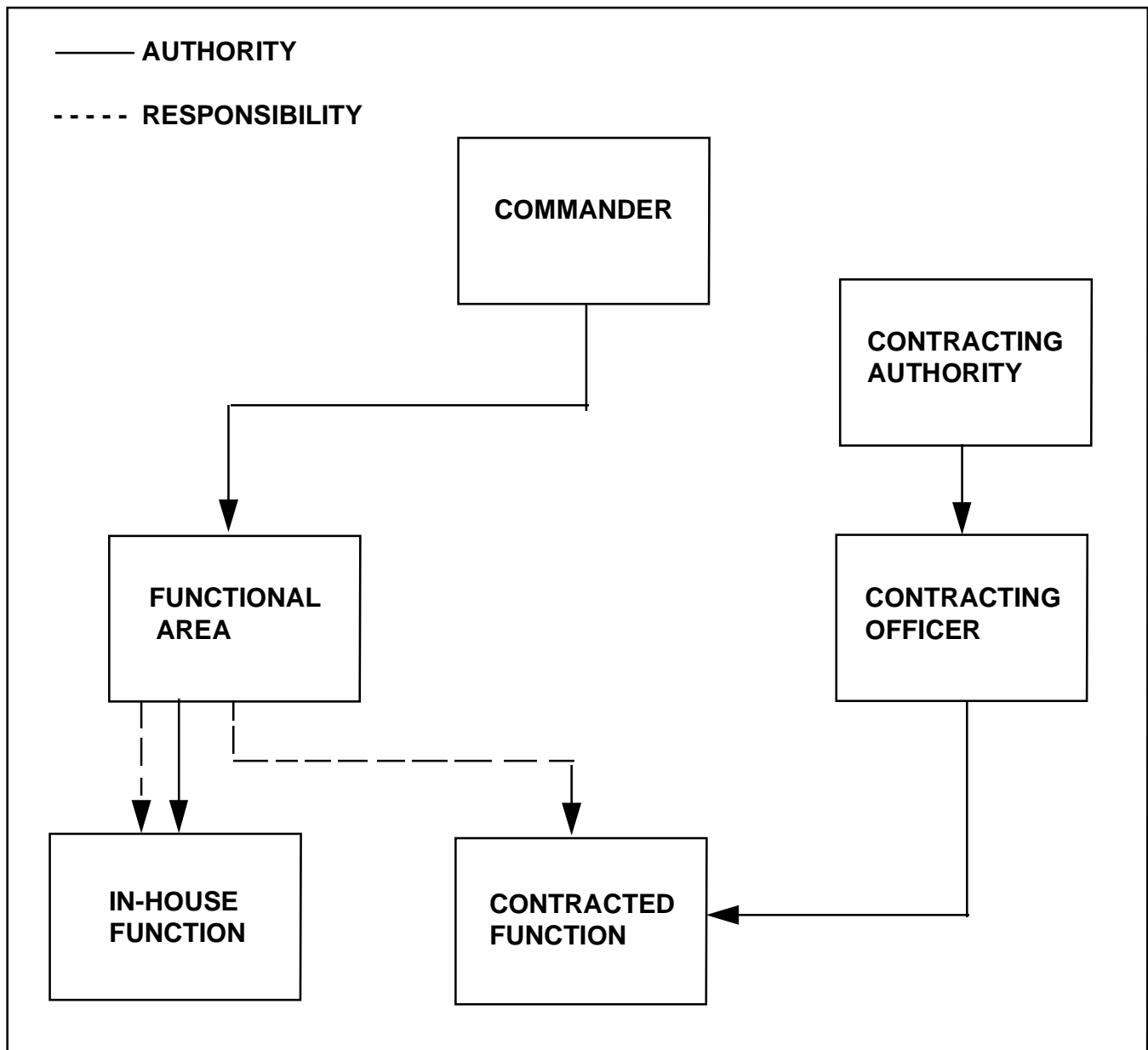


Figure 2.4. Relationships in Contracting.

2.2.1. The FAC is responsible for preparing the PWS and the QASP. Additionally, he or she is responsible for making sure quality assurance surveillance is performed according to the plan and for assisting the contracting officer during solicitation, award, and performance of the contract to make sure the services required by the contract meet the Air Force's needs and that the services furnished by the contractor meet the contract requirements.

2.2.2. The contracting officer is responsible for assisting the FAC in preparing the PWS and QASP to ensure that it is contractible and enforceable. When the PWS and QASP have been completed, the contracting officer then becomes responsible for solicitation, award, and administration of the contract.

2.2.3. The functional area analyst assists and supports the FAC in preparing the PWS and the QASP and in performing quality assurance surveillance. Duties will include gathering and analyzing data throughout all phases of job analysis and documenting results of the performance criteria analysis.

2.2.4. As necessary, manpower office personnel help the FAC in preparing the PWS. Additionally, if the function is being studied for conversion under AFI 38-203, they are responsible for performing the cost study.

### 2.3. Overview of the Method for Developing a PWS and QASP:

2.3.1. **Job Analysis.** In this first phase, the analyst starts with information on how the job is currently being done and ends with the performance output requirements. (*NOTE:* If the proposed service is a new service never performed by or for the government before, the job analysis is done based upon best available information and estimates.) The analysis consists of these steps:

2.3.1.1. **Do Organizational Analysis.** First, the analyst reviews the current organization and identifies the services it provides.

2.3.1.2. **Prepare Tree Diagram.** A tree diagram breaks a job into smaller and smaller parts. Each part brings about a final result (output) or service.

2.3.1.3. **Do Work Analysis.** Take each part of the tree diagram and break it into input, work, and output. Input is what is needed to do the job, work is what steps are needed to do the job, and output is what the work produces. During this step, the analyst decides, with management, what outputs are to be contracted and what will remain in-house.

2.3.1.4. **Gather Data.** After the analyst has picked the services on the tree diagram that are to be contractor provided, data can be gathered for these services. In this step, the analyst collects data on how much input is required to do the job, and how often the output is furnished.

2.3.1.5. **Do Performance Analysis.** Each service to be contracted has a performance requirement assigned. The analyst decides how the service can be measured and, with

management, determines what standards apply and the performance requirement to be required for that service.

2.3.1.6. **Analyze Directives.** During this step, the analyst decides what directives, if any, apply to the service. Any directive, or portion thereof, must be classified as either mandatory or advisory and must be held to a minimum. Remember that when the Air Force specifies how to perform, it assumes most of the responsibility for making sure the resultant output is the desired or required one. On the other hand, if only the output performance and required performance standard are specified, the contractor is totally responsible for the resulting output. Particular attention to regulations governing records maintenance is needed. If the contractor is to be required to setup or maintain any records that are official Air Force records, he or she may be subject to surveillance by Air Force records management personnel, or are required to be turned over to the Air Force or a successor contractor, AFI 37-121, AFP 4-31, AFI 37-123, and AFI 37-130 may apply.

2.3.1.7. **Analyze Costs.** During this step, the analyst works with the manpower office to prepare the estimated contractor cost of each specific service. These costs are used in the PWS preparation to determine the percentage of total cost of individual tasks for purposes of determining the amount of any deductions for performance that does not meet the required standard. These costs are also used in preparing the government estimate and for evaluating contractor proposals in negotiated procurements.

2.3.2. **Write the PWS.** Job analysis is performed as an initial step in the process of writing a PWS and QASP. If done properly, the concurrent writing task should be relatively easy. (Concurrent means that neither task is truly independent; what is written into the PWS determines what is put into the QASP.) Likewise, the QASP will force the writer to make sure that outputs and procedures in the PWS are measurable. When writing the PWS:

2.3.2.1. Express the desired output in clear, simple, concise, and legally enforceable terms.

2.3.2.2. Use a format that presents the specified tasks in an easy to understand manner.

2.3.2.3. Include exhibits that will help convey the requirement to the contractor.

2.3.2.4. Identify those outputs that are critical and should be a part of the performance requirements summary (PRS). Additionally, the performance indicators and information sources for surveillance of these outputs need to be identified to determine the method of surveillance to be used.

2.3.3. **Write QASP.** The QASP is a document used to make sure that systematic quality assurance methods are used. Using quality assurance controls or surveillance, the QAE can determine if contractor-provided service meets the quantity and quality standards required in the contract. The plan identifies how and when surveillance, according to the PWS, will be performed.

**2.4. Performing Job Analysis.** The starting point in looking at a service function is to see how it is organized and what kind of service it provides. This is not to say that the PWS will require that a contractor adopt the Air Force style of organization. Rather, organizational analysis provides a framework for determining what is required of the organization. To obtain this data, the analyst should perform an organizational analysis as shown in figure 2.5.

The data gathered and placed on the analysis sheet should show a complete picture of the organization. The identification of services performed is of particular importance as these services, or outputs, become the basis for writing the PWS, developing standards, defining performance indicators, and identifying performance requirements. The analyst should be as specific as possible when identifying services performed.

<b>Name of Organization:</b> Transportation
<b>Mission Statement:</b> Provides vehicle maintenance, on base vehicular transportation, shipment of household goods, etc.
<b>Organizational Elements:</b> Traffic Management Office Vehicle Maintenance Vehicle Operations
<b>Services Performed:</b> <ul style="list-style-type: none"> <li>- Normal Taxi Service, U-Drive Service, Emergency Maintenance, Outbound Personal Property Service, etc.</li> <li>- Contingent Vehicle support for disaster control exercises, etc.</li> </ul>

**Figure 2.5. Organizational Analysis.**

**2.5. Tree Diagram.** After doing the organizational analysis to find out what kind of services the organization

provides, the analyst must now link the services together in

a logical flow of activities. The major tool used for this is the tree diagram.

2.5.1. An example of a tree diagram for vehicle operations is shown in figure 2.6. As shown in the figure, the top box

states the overall function (in this case, to operate and manage vehicles). Each of the following levels divides the job into parts and subparts that develop a chart that fully describes the job in terms of these parts.

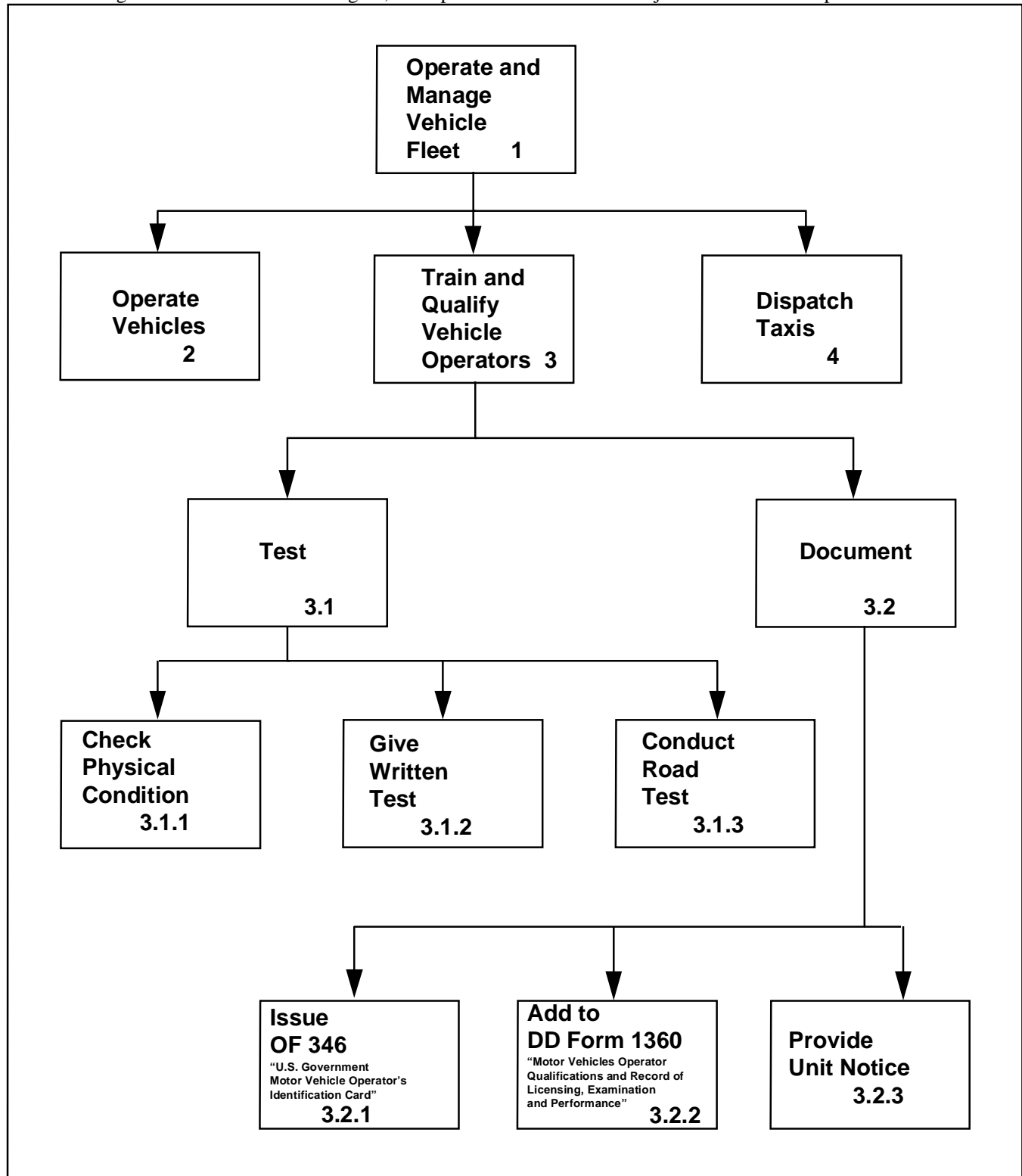


Figure 2.6. Tree Diagram.

2.5.2. The numbered boxes show the relationship of the parts back to the higher level part. For example, the block marked "test" is numbered "3.1" because it relates to "train and qualify vehicle operators," which is numbered "3." These numbers and part boxes provide the start for further analysis.

**2.6. Activity Analysis.** Prepare a separate activity analysis for each numbered box in the tree diagram. These sheets assist defining the outputs of the process. An example of an activity analysis of dispatching taxis is shown in figure 2.7.

<b>Activity: Dispatch</b>			<b>Include in Contract?</b>	
<b>Service Number: 4</b>				
<b>Input</b>	<b>Work</b>	<b>Output</b>	<b>Yes</b>	<b>No</b>
<b>Taxi Service Request</b>  - Telephone  - Walk-in  - Written	<b>1. Determine Request Validity</b>	<b>AF Form 868 - Pending</b>		<b>X</b>
	<b>2. Document Taxi Request</b>			
	<b>3. Update Taxi Request</b>	<b>AF Form 868 - In-work</b>		<b>X</b>
	<b>4. Dispatch Taxi</b>			
	<b>5. Pickup Passenger</b>			
	<b>6. Deliver Passenger</b>	<b>Passenger Movement</b>	<b>X</b>	
	<b>7. Complete AF Form 868 Request for Motor Vehicle Services</b>	<b>Filed AF Form 868</b>		<b>X</b>

**Figure 2.7. Activity Analysis and Classification.**

2.6.1. The analysis consists of three major sections: input, work, and output.

2.6.1.1. The input section lists those things that are needed to perform the work steps.

2.6.1.2. The work section identifies the steps that are needed to do the work and are numbered in sequence.

2.6.1.3. The output section contains those things produced by the work (that is, items or services that the work provides).

2.6.2. In the example shown in figure 2.7, the taxi dispatch begins with the input of a request for taxi service and ends with documentation of passenger movement.

Actual movement of the passenger and documentation of the action are both outputs of the process.

2.6.3. The analyst must complete the analysis in as much detail as possible. If the tree diagram has been branched out in enough detail (that is, as many subparts as possible), the task will be very easy. The analysis simply states what starts a job, what takes place during performance of a job, and the results of the job--input, work, output.

**2.7. Classifying Jobs.** By preparing the tree diagram and the activity analysis, the analyst knows a great deal about the job. Next, the analyst must work with management to decide what jobs will be targeted for inclusion in the PWS.

For example, the Air Force may decide to keep responsibility for the analysis section in a transportation contract. No further job analysis is needed for jobs not targeted for contract. The analyst records decisions reached in this step on the activity analysis sheets (figure 2.7).

**2.8. Gather Data.** After the analyst has identified the services to be furnished under contract, workload and resource data is gathered.

**2.8.1. Workload Analysis.** As used here, "workload" means how often output services are furnished. After the

jobs and output services are analyzed, it should be much easier to gather the needed data. As a rule, this information is available from existing management information systems (MIS), but it may need to be restructured so that it is accumulated by a specific output. The analyst must:

2.8.1.1. Find out how often a service will be furnished during the proposed contract period. Use historical information, plus projected changes, to estimate the service frequency.

2.8.1.2. Record this data on a sheet as shown in figure 2.8.

Workload			
Service	Historical Workload	Known Change	Estimated Workload
Taxi	1200/month	- 10%	1080/month
U - Drive	50/month	+ 20%	60/month
-----	-----ETC-----		



2.8.1.3. Use the workload data to build the QASP, structure the government estimate, and analyze contractor proposals. Also, it is included, for information only, in the solicitation so that potential contractors understand the workload requirements of the contract.

2.8.2. **Resources Analysis.** To provide a service, a job requires the use of physical and personnel resources.

2.8.2.1. **Physical Resources.** The analyst must gather data about the facilities, equipment, and materials needed to do the service. This data should concern physical resources at the specific service output level. (For example, data on what physical resources are needed to perform emergency repair services.) For each item identified, you must determine whether or not the government will give the item to the contractor for

performance of the service. As a rule, the contractor should provide all resources required for contract performance. In some instances, items to be furnished to the contractor may not be provided throughout the contract period (existing material, for example, provided to the contractor as initial inventory may not be furnished by the government when replenishment is required). The analyst should specifically identify this information and record the applicable data on charts such as those shown in figures 2.9 through 2.11. The writer of the PWS will use this information to develop the listing of government-furnished property in the PWS. In addition to providing a listing of government-furnished property for a resultant contract, this data is necessary to prepare the government estimate.

<b>Service: Vehicle Repair - Facility</b>		
<b>Facility</b>	<b>Square Feet</b>	<b>Location</b>
<b>Bldg 1095</b>	<b>25,000</b>	<b>Maxwell AFB</b>
<b>Bldg 715</b>	<b>1500</b>	<b>Maxwell AFB Gunter Annex</b>
	<b>ETC.</b>	

Figure 2.9. Facility Analysis.

Service: Vehicle Repair - Material			
Name	Stock Number	Quantity	GFP
Tires	2610XXXXX-XXXX	1000	No
-----	-----ETC.-----		

Figure 2.10. Material Analysis.

Service: Vehicle Repair - Equipment					
Name	Stock Number	Serial Number	Location	Qty	GFP
Desk, Office	711000270-9840		Vehicle Ops	2	Yes
Training Aid - Driver	693000526-3639	MF270S-	Driver Training	1	No
-----	-----	-----ETC.-----	-----	-----	-----

Figure 2.11. Equipment Analysis.

**2.8.2.2. Personnel Resources.** The analyst must also gather data on the types and numbers of personnel needed to perform each service output. Data should be recorded as shown in figure 2.12. Data for this effort is available from manpower documents of the organization, but the data may need to be restructured to break it out for the specific services provided. For example, a manpower document might show how many people and what skill levels are authorized to operate a vehicle, but not how

many people are allocated to perform the vehicle dispatch service. The analyst must extract this data to complete the data analysis. The analyst must also be alert to the fact that the personnel requirements should be those needed to perform the service, not necessarily the current manning of the organization. This personnel information is used to develop the government estimate and to evaluate contractor's proposals.

<b>Activity: Vehicle Operations - Personnel</b>			
<b>Service</b>	<b>Authorized Grade</b>	<b>Number</b>	<b>Security Clearance Required</b>
<b>Vehicle Dispatch</b>	<b>SSgt</b>	<b>1</b>	<b>No</b>
	<b>SrA</b>	<b>2</b>	<b>Yes</b>
	<b>A1C</b>	<b>4</b>	<b>No</b>
<b>Taxi Service</b>	<b>SSgt</b>	<b>1</b>	<b>Yes</b>
	<b>A1C</b>	<b>6</b>	<b>No</b>
<b>-----ETC-----</b>			

**Figure 2.12. Personnel Analysis.**

**2.9. Performance Criteria.** Every service performed has some standard of performance which, when met, means that the service was performed satisfactorily. Additionally, it must be recognized that performance will not be satisfactory 100 percent of the time. Therefore, every service task has a performance standard. The performance standard specifies the percentage of occurrence of the task which must be performed, at or above prescribed standards, within a given time frame or per a given number of performances in order for the total task performance for that time period or group of performances to be considered satisfactory. For example, assume that a taxi pickup (the service) is to be provided within 4 minutes of an agreed

upon pickup time 90 percent of the time (the standard). If taxi pickup services are performed 100 times, then they need only be provided within 4 minutes of scheduled pickup time 90 times in order for the total 100 pickups to be considered satisfactory. The maximum error rate would be 10 percent and the performer would be allowed 10 of 100 performances where the standard was not met and still be considered satisfactory. For each service output, the analyst must determine the performance indicator, performance standard and maximum error rate of that service. The analyst should record these items as shown in figure 2.13.

<b>Activity: Taxi Operation</b>		
<b>Performance Indicator</b>	<b>Standard</b>	<b>Maximum Error Rate</b>
<b>Response Time</b>	<b>4 minutes</b>	<b>10%</b>
<b>Accidents Per Mile</b>	<b>0</b>	<b>0%</b>
<b>Operational Cost Per Mile</b>	<b>\$0.14</b>	<b>20%</b>
<b>Taxi In-Commission Rate</b>	<b>90%</b>	<b>10%</b>

**Figure 2.13. Performance Criteria Analysis.**

2.9.1. **Performance Indicators.** To specify a performance standard, there must be a performance indicator for the service. A performance indicator is a feature of an output that can be measured, quantitatively or qualitatively. (In the example in the preceding paragraph, the pickup time is a performance indicator for taxi service.) Selection of performance indicators is a prerequisite for determining standards and maximum error rates for a given output.

2.9.1.1. In determining performance indicators, the analyst must determine what elements of the service will provide a measure of output quality. To do this, each previously identified job must be reviewed to identify common measurement standards. Many such standards are expressed in rates, such as operational cost per mile for taxi service. They may also be expressed in other terms such as a response time limitation. Indicators may also be expressed in negative terms such as "no more than 5 returns per 100 issues," but it is preferable not to use negative terms unless absolutely necessary.

2.9.1.2. In many cases, command directives specify the performance indicators for evaluating a process. If not prescribed, the analyst must work with management to determine what indicators will help to measure the process. The analyst and management must be careful to choose performance indicators that are realistic and truly indicative of the acceptability of output. The grams of dust per square centimeter on a vehicle is a measurable performance indicator for cleaning a vehicle, but the measurement would be so costly in terms of surveillance time that it is an unrealistic indicator for such a minor task. Likewise, indicators that require individual subjective

judgment, such as "vehicles must be clean" are undesirable as they inject personal opinion in what should be an objective process. For example, most people find it difficult agree on "how clean is clean"? When possible, performance indicators must be quantitatively measurable.

2.9.1.3. For any given service output, there may be several performance indicators. The analyst, with management, must determine which one best determines the acceptability of the service output as opposed to those that just provide "Gee Whiz" information. One performance indicator must be selected for each separate output.

2.9.1.4. Performance indicators must not be identified for outputs that relate strictly to internal management. For example, work scheduling is required to get the job done; however the Air Force is interested only in getting the job done, and is not generally concerned with how it gets done. The stress is on performance, not procedures. Hence, there is no need to identify a performance indicator for work scheduling.

2.9.2. **Performance Standards.** With help from management, the analyst must find one reasonable standard that embodies the criticality of the service to be furnished and the minimum needs of the government for the service. Selection of performance standards is critical because these standards directly affect the cost of the service. It is human nature to expect the highest standards for things we buy, but we all compromise in the interest of cost. Car-washing services provide an example. Drive-through facilities where the car is vacuumed, the windows cleaned, and the exterior of the car is washed mechanically, are readily available. Also available are facilities where the car is hand washed, the interior is

thoroughly cleaned, tires and hubcaps are scrubbed, etc. While the latter service definitely provides a much cleaner car, it is much more expensive than the drive-through facility. Most of us use the drive-through facility over the hand wash because we want our car to be clean, but are unwilling to pay the price needed to make it pristine.

**2.9.3. Maximum Error Rate (MER).** For each task standard, there must be a maximum error rate. The MER is critical because it directly affects the price of the service and the amount of quality assurance surveillance needed. MERs available for use in PWSs are 1 percent, 5 percent, 10 percent, or 15 percent (figure 4.2). In selecting MERs, the analyst must be careful to make sure they are realistically attainable, necessary, and truly reflect the government's minimum needs--not the desires, but actual needs. The MER can be based on historical records of past performance, consensus of management, or command imposed requirements. The MER should rarely be zero because zero requires perfection, a condition that is

virtually impossible to achieve and very expensive to pursue. While a zero MER is not included as a maximum error rate for use, it may be used if the task mandates it. In such cases, 100--percent surveillance should be used.

**2.9.4. Performance Requirement.** The performance requirement is the point that divides acceptable and unacceptable performance for a given set of performances when random sampling is the method of surveillance.

**2.9.5. Performance Criteria.** The performance criteria identified in this task will become the basis for completing the AF Form 713, **Performance Requirements Summary**, of any resulting performance work statement.

**2.10. Governing Directives.** For each service to be furnished, the analyst must identify all directives related to the service and determine the applicability of those directives to any contractor who performs the service. The analyst should record the data as shown in figure 2.14.

Governing Directives					
Directive	Title	Date	Referenced In	Mandatory	Advisory
AFM 77-310	Vehicle Maintenance Management	24 Apr 87			X
T.O. 00-208-5	USAF Motor Vehicle and Vehicular Equipment Inspection	24 Apr 87	AFM 77-310, Vol II	X	
-----	-----	-----	ETC.	-----	-----

Figure 2.14. Governing Directives Analysis.

**2.10.1. Cataloging Directives.** The first step in this process is to list all manuals, regulations, instructions, technical orders, and other Air Force, MAJCOM, and base directives or guidance that pertain to the services to be furnished. Any other documents referenced within the listed manuals, regulations, etc., must also be added to the overall list. List the title and date of the publication. If only parts of the publication apply, note those parts in the directive column. If the publication is referenced in another publication, cite that publication in the "Referenced In" column.

**2.10.2. Applicability of Directives:**

**2.10.2.1. Mandatory Applicability.** After determining which directives currently apply to the services, the analyst must determine which of these should also apply to a contracted operation. In making this determination, the analyst must keep in mind that, in most cases, it is not the Air Force's concern as to how the services are performed, but rather what the results are. Only those directives that must absolutely be followed for mission accomplishment, safety, or legal reasons should be imposed on the contractor. If a publication, or any portion thereof, is determined to be mandatory, it must be included in the PWS for this service.

**2.10.2.2. Advisory Applicability.** Some publications associated with the service may contain information that is beneficial to the service in question or ancillary services not included in the instant service but which affect it in some way. These publications may be appropriate for inclusion in the PWS as advisory to provide information to the contractor. The analyst must determine which publications, or portions thereof, should be included in the PWS as advisory.

**2.11. Payment Analysis.** The contract clause, Inspection of Services, provides a means to reduce payment to the contractor for services not satisfactorily performed by the

contractor. In short, if the Air Force does not receive the service, it does not pay the contractor. The procedure for withholding payments to a contractor is referred to as "deductions." To legally make a deduction from a contractor payment, the amount deducted must correlate to the price of the service not performed; it may not be an arbitrary figure. Thus, it is necessary to determine what percentage of the total cost of a contract each service performed under that contract represents. This is the final task of the analyst.

**2.11.1.** The source of information is the personnel data for the specific service outputs previously identified. Other resources (such as equipment and material) and overhead costs are not normally included because of the difficulty in identifying them to the output level. Further, most of these costs will be spread over the total contract by the contractor and would, therefore, not affect the percentage of total cost for any given output. If, however, there is a significant cost, other than personnel, that can be accurately estimated and allocated to a specific service output, include it as a part of that output's total cost.

**2.11.2.** The analyst should compile the applicable data and record it in a format similar to the one in figure 2.15. The analyst should list each service down to its smallest parts as was done in the tree diagram earlier in the process. For each of these services (subtasks only if the task has several parts), the number of personnel needed to do the job must be identified. The number of personnel needed may require adjustment from those figures determined in the earlier analysis of resources. Such an adjustment may be necessary since standards and performance requirements directly affect the number of persons needed to do a task. Further, since the previously identified personnel data represents in-house performance, the analyst must adjust the data to show staffing and payroll costs that a contractor would probably use to perform the services.

<b>JOB: VEHICLE OPERATIONS</b>	<b>PERSONNEL</b>	<b>PAYROLL COST PER MONTH</b>	<b>% OF TOTAL</b>
<hr/>			
<b>OPERATE VEHICLES</b>			
Operate Taxis	5	\$5000	19.2%
Operate Scheduled Bus	4	\$4000	15.4%
Operate Unscheduled Bus	1	\$1000	3.8%
<b>TRAIN/QUALIFY VEHICLE OPERATORS</b>			
Test			
Check Physical Condition	1	\$1000	3.8%
Give Written Test	1	\$1000	3.8%
Conduct Road Test	1	\$1000	3.8%
Document			
Issue SF 46	.3	\$ 360	1.4%
Add to DD Form 1360	.3	\$ 360	1.4%
Provide Unit Notice	.1	\$ 100	0.4%
<b>MANAGE CREDIT CARDS</b>			
Issue Cards	.2	\$ 240	0.9%
Process Receipts	.2	\$ 240	0.9%
<b>DISPATCH VEHICLES</b>	1	\$1000	3.8%
<hr/>			
-----etc.-----			
<hr/>			
<b>TOTAL</b>	<b>28</b>	<b>\$26,000</b>	<b>100%</b>

Figure 2.15. Payment Analysis.

2.11.3. The analyst should calculate the payroll costs on a monthly basis and for each service. The analyst should use the service contract wage rates appropriate to the service, if they are available, not the in-house payroll costs.

2.11.4. The percent of the contract total tells how much each specific service represents in terms of the total service contracted. To get this percentage, add all the payroll costs to get a total and then divide each specific service payroll cost by the total cost. Enter each resulting

percentage in the percent of total column that must total 100 percent.

2.11.5. When the contract has more than one priced line item for services that can be subdivided, this process may be performed by line item. That is, all services that comprise a specific line item are listed with their respective payroll costs and the percentage of total is determined by line item. When performed on a line item basis, the total per line item must be 100 percent.

## Chapter 3

### WRITING THE PERFORMANCE WORK STATEMENT

**3.1. The PWS.** Once data has been gathered and analyzed in job analysis, only two things remain to be done. The first task consists of actually writing a PWS. The second task is writing a QASP that complements the PWS. This chapter addresses the first task only.

**3.2. Writing the PWS.** Considering all the previous work, writing the PWS should be relatively simple. In writing the document, keep in mind that it should contain only those things required to specify the services to be performed. The PWS will become a part of a contract document that will contain numerous general and special provisions that address the responsibilities and authorities of both the contractor and the government. The PWS must not duplicate nor contradict any of these provisions as they take precedence over the PWS.

**3.3. Service Contract Format.** Before writing the PWS, develop an outline to provide structure for the document. Attachment 2 provides basic guidelines on how to format a PWS. Follow the format shown therein to provide continuity to Air Force service contract PWSs. The following general information provides a view of the contents and requirements of each major section.

**3.3.1. General (Section C-1).** This section provides a broad overview to the PWS, including a description of the scope of the work and contract requirements that relate to the overall management of the contract. This is general information as opposed to specific task requirements detailed in "Specific Tasks (Section C-5)." An important part of this section is the specification of the contractor's specific responsibility for quality control under this contract (contractually required by the Inspection of Services clause). If requirements specified in the example in attachment 2 are to be included, use the language exactly as provided in the example unless exempted according to paragraph 1.4.

**3.3.2. Definitions (Section C-2).** A definitions section is required to define all terms and phrases used in the PWS.

The definitions must clearly establish what is meant so that all parties will fully understand them. The general definitions in the example in attachment 2 must be included as written unless eliminated under an exemption according to paragraph 1.4.

**3.3.3. Government-Furnished Property and Services (Section C-3).** If the Air Force will provide any property or services to the contractor for use in performing the required services, use this section to describe what will be furnished. If the property is not to be provided for the total duration of the contract, specify the exact time frames in which it will be furnished. This is required by the government-furnished property clause in the contract. Property listed as government-furnished must be identified by national stock number (or other identifying numbers, as applicable), noun, and quantity. If fairly extensive, list the items in a technical exhibit such as Technical Exhibit 5, attachment 2. Unless exempted under the provisions of paragraph 1.4, language used in attachment 2 must be included as written if the government-furnished items listed in the paragraph are to be provided. If the contractor is to be allowed access to government sources of supply to acquire items for contract performance, include the contractor actions required by FAR Part 51 in the PWS, either in section C-1 or section C-5.

**3.3.4. Contractor-Furnished Items and Services (Section C-4).** In this section, describe material, equipment, and services the contractor must provide according to the instructions in attachment 2. As with government-furnished property, if the lists are lengthy, make a technical exhibit and reference it in this section.

**3.3.5. Specific Tasks (Section C-5).** This is the heart of the PWS because it contains all of the output services required of the contractor. To write this section, use the tree diagram (figure 2.6) developed in the job analysis and include each of the required services. To follow a logical progression, the sequence of the services should be the same as in the tree diagram. When technical orders or other publications dictate the performance of a task, cite



the specific regulatory requirement. Additionally, describe the requirement to be performed (according to the cited requirement) or include the regulatory requirement verbatim in the description of the task. When advisory publications apply, cite them.

**3.3.6. Applicable Publications and Forms (Section C-6).** This section contains the list of both mandatory and advisory publications and forms that apply to the contract. List all publications and forms referenced in other sections of the PWS and any other publications deemed appropriate for advisory purposes.

**3.3.6.1. Publications.** When only small portions of a publication apply, include those portions verbatim in section C-5 and list here. When larger portions of a regulation apply, reference only those portions, not the entire regulation. This section must also include instructions on how changes in directives are handled. Use the language exactly as provided in the example at attachment 2 unless waived according to paragraph 1.4.

**3.3.6.2. Forms.** Regulations or directives requiring contractors to complete forms is subject to Public Law (PL) 96-511 provisions. PL 96-511 requires that any forms filled out by contractors be cleared by the Office of Management and Budget (OMB) and assigned an OMB approval number. All such forms also require addition of an Agency Disclosure Notice (ADN) estimating the average (hours/minutes) per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

**3.3.7. Technical Exhibits:**

**3.3.7.1.** Note that the AF Form 713 is included in Technical Exhibit 1. At this time, all columns except the performance requirement and method of surveillance columns may be completed on a preliminary basis (figure 3.1). These two columns will be completed during completion of the QASP. When completing the AF Form 713, list all tasks that will receive quality assurance surveillance. This does not necessarily mean to include every task in section C-5 in the PRS. For example, in a transportation management service contract, a contract requirement for vehicle maintenance may be included as a task in section C-5. Under the task for vehicle maintenance, there will be numerous subtasks listed such as performance of preventive or periodic maintenance, vehicle repair, etc. All of these subtasks must be done in order for the contractor to properly maintain the vehicles, but each individual task need not be evaluated separately to determine the quality of the contractor's performance of the vehicle maintenance requirement. The vehicle in-commission rate for the surveillance period would be the most comprehensive indicator of the contractor's quality of performance of all the subtasks as well as the primary task. Therefore, the performance standard for the task of vehicle

maintenance would be expressed in terms of the vehicle in-commission rate required, and one PRS item would account for several task requirements of the contract. Complete the required services column with a short description of the task. The standard column will include the required performance standard for that task as determined during job analysis. The maximum payment percentage column contains the percentage of total costs associated with that task as determined during the payment analysis process. Include the payment percentage only for those tasks to be inspected by random sampling or 100-percent surveillance; the others must be administered using the Inspection of Services clause.

**3.3.7.2.** Use other technical exhibits for items that are too bulky to be included in the main body of the PWS and for information that will be helpful to the contractor.

**3.4. Composition of the PWS.** The PWS becomes a part of the contract and is, therefore, contractually binding on both the contractor and the government. The words in the PWS translate into cost and profit, therefore, every word will be scrutinized and interpreted to the advantage of the reader. Since the words in the PWS are the only means of describing the Air Force requirements, they must clearly and unambiguously state those requirements so that any disinterested party will understand what is required. For these reasons, define and express each requirement very succinctly.

**3.4.1. Style of Writing.** Style refers to the method of expressing ideas in phrases, sentences, and paragraphs. Technical style is the way the writer assembles the technical information into an exact statement of facts. In writing a PWS, the style must present technical accuracy while including all of the essential information in the simplest manner.

**3.4.2. Use of Language.** The language in a PWS must be exact and concise. Every effort must be made to use the simplest words, phrases, and sentences possible so that anyone who reads it can understand its meaning and avoid the risk of misinterpretation. Also, there are some words that have contractual meanings which must be used correctly to avoid misstating the requirement. Consult the contracting officer on proper wording to make sure the PWS accurately describes what is required.

**3.4.3. Problems With Ambiguities.** Perhaps one of the biggest causes of disagreement on PWSs results from the use of indefinite, ambiguous terms or words. If an ambiguity is present, the Armed Services Board of Contract Appeals and the courts always hold against the party that wrote the contract. Since the Air Force writes its contracts, it is legally responsible for any ambiguities in the contracts. Ambiguities often result in increases in contract price, so be extra careful to avoid ambiguities.

PERFORMANCE REQUIREMENTS SUMMARY				
REQUIRED SERVICE	STANDARD	MAXIMUM ALLOWABLE DEGREE OF DEVIATION FROM REQUIREMENT (AGL)	METHOD OF SURVEILLANCE	MAXIMUM PAYMENT PERCENTAGE FOR MEETING THE AGL
Operate Taxi C-5.1	Customer must be picked up within 4 minutes of the agreed time.			19.22
Operate Scheduled Bus Services C-5.2.1	Bus must not arrive at the stop later than scheduled time plus 5 minutes or depart earlier than scheduled.			13.23
Operate Unscheduled Bus Services C-5.2.2	Bus must arrive not later than 4 minutes from agreed time between customer and dispatcher.			1.87
ETC.				

AF FORM 713 PREVIOUS EDITIONS OBSOLETE. JAN 87

U.S. GOVERNMENT PRINTING OFFICE: 1983-332-214-111

Figure 3.1. Sample AF Form 713, Performance Requirements Summary.

**3.4.5. Misused Words and Phrases.** In a contractual document, one word may change the entire meaning of the sentence, paragraph, section, etc., because of the way that word, or lack of a word, has been consistently interpreted in contract law. The following guidelines are provided to aid in avoiding the pitfall of inadvertently changing an intended meaning in the PWS. Consult the contracting officer to avoid such problems:

**3.4.5.1. Use of "Shall," "Will," and "May."** The term "shall," when used in a contract, is always used to specify that the requirement is binding. The term "will," on the other hand, may be interpreted to mean that the requirement is not always mandatory. The term "may" generally denotes permissiveness except when used in a phrase such as "no person may." When used in that way, it means that no one is required, authorized, or permitted to do the thing described.

**3.4.5.2. Use the Emphatic Form of Verbs.** It is important to clearly state that something must or must not be done. The emphatic form of the verb will make sure that specific direction is being given, not suggestions.

**3.4.5.3. Do Not Use "Any," "Either," and "And/Or."** These words allow for choice. It is better to avoid them unless a choice is exactly what we intend. The word "both" can often be substituted for these words to impart a clearer meaning.

**3.4.5.4. Avoid use of pronouns.** The use of pronouns is not recommended in PWSs. It is better to repeat the noun and avoid misinterpretation.

**3.4.5.5. Use Consistent Terminology.** The same words and phrases must be used throughout the PWS when addressing the same thing. This is especially true when referring to technical terms.

**3.4.5.6. Use Numerals.** When numerals are used on any drawings, illustrations, charts, or tables, use the numerals in the PWS when referring to the drawings, etc., rather than spelling out the number.

**3.4.6. Use Standardize Spelling.** For words that have more than one acceptable spelling, use the standard or most widely accepted spelling to avoid any misunderstanding.

**3.4.7. Punctuation in the PWS.** To keep the PWS clear, use simple, short, and concise sentences so that only the minimum punctuation is needed. A general rule should be: When extreme punctuation is necessary, rewrite the sentence.

**3.4.8. Abbreviations and Acronyms.** The first time an abbreviation or acronym is used in the text, show the abbreviation or acronym in parentheses immediately after the spelled-out word or phrase. This readily defines the abbreviation for further use in the text. Include all abbreviations and acronyms in the text in the definitions section (section C-2) of the PWS.

**3.4.9. Effective Sentences.** Because a PWS becomes a part of a contract, many writers think that sentences must be spiced with legal phraseology and sophisticated words.

Not only is this untrue, it can be dangerous because it allows for ambiguity to sneak into the PWS. Clarity is the writer's overriding concern. Simple, well-recognized words are the goal. Rearrange them into two or three short, simple sentences with few or no adjectives and adverbs. Limit sentences to a single idea or thought. Use simple sentences in the PWS and base them on the traditional subject-verb-object order. It is better to eliminate long and involved sentences; instead, use logical sentences that are exact and concise.

**3.4.10. Effective Paragraphs.** Use a paragraph to state a single idea and elaborate on it. Even though it may appear anywhere in the paragraph, it is best to state the idea or topic sentence at the beginning so the reader can grasp it immediately. The topic sentence is the framework to develop and support the original idea. Although paragraph length will vary, it is generally accepted that the maximum should be between 80 and 100 words.

**3.5. Reports or Data Submissions.** Service contracts often require the contractor to submit various data items, forms, reports, etc. Data requirements should only be referenced in the appropriate tasking paragraph in Section C-5. This reference will simply identify the **Contract Data Requirements List** (CDRL) number (DD Form 1423), **Data Item Description** (DID) (DD Form 1664) or technical exhibit cite immediately following the PWS paragraph or requiring task deliverable date. Technical exhibit 4 must contain all reporting or data submission requirements. Include all data requirements (e.g. format, submission dates, addressees) to provide a ready reference of all report submittal requirements under the contract. The technical exhibit should be completed as shown in Attachment 2 unless the contracting officer determines that the use of the DD Form 1423 is impractical, per Department of Defense (DoD) FAR Supplement 227.405-70(a)(4).

**3.5.1. Data Submissions Under the Data Management Program.** Both the DD Forms 1423 and 1664 are cleared by the Office of Management and Budget (OMB) for use only under the procedures of the data management program. This means the DD Form 1664 must be implemented in accordance with DoD-STD-963A, *Preparation of DIDs*, and submitting proposed DIDs for approval to OASD(P&L)CALS/PPD. DoD 5010.12-M, *Procedures for Acquisition and Management of Technical Data*, applies when the DD Form 1423 is used. In addition, when the DD Form 1423 is used, DoD FAR Supplement 252.227-7031 must be included in the contract.

**3.5.2. One-time Data Submissions.** The DoD Acquisition Management Systems and Data List (AMS DL) Clearance Office reviews and approves every DID intended for repetitive procurement. The DoD AMS DL Clearance Office relies on the Service Data Management Offices to control the issuance of one-time

procurement DIDs. Any data reporting or collection requirement outside of the AMSDL requires approval by the appropriate Center or MAJCOM Data Management Officer (DMO). Once approval is obtained, a one-time

approval number will be provided, which must appear in block 2 of the DD Form 1664. The date of this approval is to be included in block 4.

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## Chapter 4

### THE QUALITY ASSURANCE SURVEILLANCE PLAN

**4.1. Basic Approach.** The purpose of a QASP is to provide a planned process for surveilling the contractor's actual performance and comparing that performance against the contractual requirements to determine conformity with the technical requirements of the contract. As a beginning to the plan, the FAC or QAE must determine the contract requirements to be surveilled and the method of surveillance to be used for each of the requirements. Once completed, the QAE must finalize the PRS. The QASP should provide the QAE with information with which he or she can identify acceptable performance and potential reasons for any nonconforming performance.

**4.2. Types of Surveillance.** The ability to deduct for services that do not meet contract performance requirements is directly related to the type of surveillance used. If the actual surveillance procedures are not random sampling (uses statistical criteria that allows for rejection of an entire lot when a specific number of random samples of the lot are found to be nonconforming) or 100-percent surveillance, then taking a deduction from the authorized monthly payment for that task is unallowable. Random sampling, using the statistically based indifference quality level (IQL), is the only acceptable method of surveillance where a sample of the lot is inspected instead of the entire lot, and the results of such inspections can be attributed to the entire lot. (The IQL is the point that divides acceptable from unacceptable performance.) If random sampling is not used, there is no acceptable method of determining the acceptability of the entire lot other than 100-percent inspection of the lot. For this reason, random sampling or 100-percent inspection are the methods of surveillance to be used for those tasks that are not capable or practical to re-perform. As there are several methods of surveillance available, carefully select the best surveillance method to use for each PRS listed task to ensure full compliance with the policies of this manual. The standard methods of surveillance are:

**4.2.1. Random Sampling.** This is the most appropriate method for frequently recurring tasks. Random sampling is done to determine whether to accept or reject the contractor's performance of the total lot of a particular task for a given period of time. The QAE evaluates randomly selected samples of the lot to determine the acceptability of

the entire lot. (The random sampling method used in this manual is statistically based and uses indifference quality principles to calculate IQLs or performance requirements, required samples for each level of performance requirements, and corresponding MERs. The statistical basis for random sampling according to the policies and procedures of this manual are complex and will not be fully explained here. The statistical concepts employed are, however, widely understood and have been used successfully for many years.)

**4.2.2. One Hundred-Percent Inspection.** This surveillance type is preferred for those tasks that occur infrequently. This includes tasks that cannot be random sampled because the sample size for a small lot may exceed the lot size. For example, if a task is performed once a day in one location, the lot size of 22 would be less than the smallest sample size (25 samples) shown in figure 4.2. It is also used frequently for those tasks having very stringent performance requirements. When this type surveillance is used, the QAE must inspect and evaluate the contractor's performance each time it is performed. The results of the contractor's overall performance is then evaluated to determine acceptability of the lot.

**4.2.3. Periodic Surveillance.** This type of surveillance consists of the evaluation of samples selected on other than a 100-percent or statistically random basis. An example of periodic surveillance is weekly inspections when the QAE chooses the location and time in other than a statistically random manner. This is not a preferred method of surveillance and cannot be used as a basis of deduction from payments because it does not provide a statistical basis for deducting for nonconforming performance. Tasks shown on the PRS as having periodic surveillance will have no maximum payment percentage calculation in the fifth column of the PRS. The contracting officer may use the results of periodic surveillance inspections as the basis for actions (other than payment deductions) against the contractor. In such cases, the Inspection of Services clause becomes the basis for the contracting officer's actions.

**4.2.4. Customer Complaints.** This is the least preferred method of surveillance because it cannot be used as a basis of deduction from payment since it is not a statistically valid method of surveillance. Further, customer complaints may not always relate to actual requirements of the

contract, and verification of customer complaints can be extremely labor intensive. Its use, however, may be necessary for certain types of tasks that do not lend themselves to random sampling or 100-percent inspection. The contracting officer may use validated customer complaints as the basis for actions (other than payment deductions) against the contractor. In such cases, the Inspection of Services clause becomes the basis for the contracting officer's actions. When used, customer complaints must follow a formalized procedure:

4.2.4.1. The QAE must furnish written instructions and customer training to each organization receiving the contractor's service. Instructions and training should cover the format and content of the program and service to be surveilled; the action that may be expected from the QAE, contract administrator, and contracting officer as a result of the complaints; and the limitations on the customers in dealing with contractor personnel.

4.2.4.2. The QAE is the primary point of contact for and must collect all customer complaints. AF Form 714, **Customer Complaint Record** (figure 4.1), or a locally devised form may be used, but all complaints and any resulting resolution of such complaints must be documented with the information required on the AF Form 714. Customer complaint forms become a permanent part of the QAE surveillance records.

**4.3. Sources of Information.** The determination of the acceptability of contractor performance is based on comparing the quality of performance of a task to the contract task standard requirement. The quality of performance can be determined from government or contractor MIS reports or from government observation of completed tasks.

4.3.1. **Management Information Systems.** In some instances, MISs may be available in the form of information on a contractor's performance against contract performance requirements; i.e., the vehicle integrated management system (VIMS) in the vehicle maintenance area. MISs generally provide information regarding various characteristics of tasks (task attributes) and can, therefore, be used to determine acceptability of a contractor's performance. For example, with VIMS the mission capable rate of all vehicles is included in the report. The mission capable rate is an attribute of vehicle maintenance that can indicate acceptability of the contractor's performance of vehicle maintenance. As MISs usually collect information for 100 percent of the activities for a specified period of time, use of the information provided by a MIS would constitute 100-percent inspection as the method of surveillance for vehicle maintenance if the performance requirement is specified as a mission capable rate.

4.3.2. **Observation of Task Attributes.** Many tasks are not included in MISs, or are not capable of being included

in any reports that would indicate the acceptability of the performed tasks. Such tasks must be determined acceptable by physical observation of the task attribute selected to indicate acceptability of the task. For example, for shuttle bus services, the attribute for acceptable service may be the timeliness of the service. The only way to determine the on-time rate of the contractor is to actually time the bus service by catching the bus at one of the scheduled stops. When observations are used as the source of information, the most appropriate method of surveillance is random sampling.

4.3.3. **Observation of Performance.** In some cases, the actual procedures followed during performance are contractually specified and are assigned a standard of performance. In these instances, it is necessary to actually observe the task performance versus reviewing an attribute of the finished output.

**4.4. Preparing for the QASP.** Before writing the QASP, the writer, with the FAC and QAE, must determine the performance requirement and the method of surveillance for each task in the PRS. This is needed for each task listed in the PRS, whether or not the surveillance method allows for deductions from payment for nonconforming services. Based upon the performance requirement, the contractor can determine what level of performance is needed and how the government will do surveillance, regardless of any action the contracting officer may take if the contractor does not meet those requirements.

4.4.1. **Determining Methods of Surveillance.** The method of surveillance is based on the performance value analysis developed during "job analysis." The writer enters the selected surveillance method for each task on the PRS. In selecting the appropriate surveillance method, take into consideration the criticality of the task, the lot size of the task, the surveillance period for the task, the required performance standard, the performance requirement, availability of QAEs to do surveillance, and the value of the surveillance in relationship to the cost or criticality of the task (spending several manhours to inspect a twenty dollars service). For example, a task required to be performed three times a month could be under the 100-percent inspection method with a surveillance period of monthly if the task is a critical task requiring exacting performance. If, however, it is not a critical task, it may be more appropriate to do periodic surveillance or random sampling using a quarterly or semiannual surveillance period.

4.4.2. **Determining the Performance Requirement.** Once the writer, with the FAC and the QAE, determines the method of surveillance, he or she should then determine the performance requirement for inclusion on the PRS. Performance requirements are generally determined based on one of the two general sampling

CUSTOMER COMPLAINT RECORD		DATE TIME RECEIVED	
		29 Mar 1993/1000 hrs.	
SOURCE OF COMPLAINT			
ORGANIZATION	SLICING NO.	ADDRESS	PHONE
387 Bomb Wing/AGC	1512	Capt John Murry	Ext 4923
NATURE OF COMPLAINT			
Called wrecker and it did not arrive until 3 hours after the request.			
CONTRACT REFERENCE			
1-5, Paragraph 3.3.1 and Performance Requirements Summary.			
ANALYSIS			
Contract requires a 1-hour response time. Checked bill sheets and wrecker time sheets. Complaint is valid.			
DATE TIME CONTRACTOR RECEIVED COMPLAINT			
29 Mar 1993/1000 hrs.			
ACTION TAKEN BY CONTRACTOR			
Contractor had a person out sick and did not have a back-up driver. He has now developed a roster of back-up drivers who can operate a wrecker.			
RESPONSE COMMENTS			
B. Smith/QAL			

AF Form 714 PREVIOUS EDITIONS WILL BE USED

COMPLAINANT-1

Figure 4.1. Sample AF Form 714, Customer Complaint Record.

methods; random sampling and other than random sampling methods.

4.4.2.1. The performance requirement for tasks to be surveilled by random sampling is the maximum number of defectives allowed in a sample size before the overall lot becomes unacceptable. These maximum numbers are directly related to the maximum error rates (MER) shown in figure 4.2. For example, the smaller the MER, the more

stringent the performance requirement; a one percent MER has a performance requirement (maximum allowable defectives) of zero while a 15 percent MER has a performance requirement of 3.

4.4.2.2. The performance requirement for tasks to be surveilled by other than random sampling surveillance methods, it is the percentage of the total lot, or a specific

#### **PERFORMANCE REQUIREMENTS:**

<b>MAXIMUM ERROR RATE</b>	<b>PERFORMANCE REQUIREMENT</b>
<b>1%</b>	<b>0</b>
<b>5%</b>	<b>1</b>
<b>10%</b>	<b>2</b>
<b>15%</b>	<b>3</b>

#### **SAMPLE SIZE FOR UNKNOWN LOT SIZES OR LOTS GREATER THAN 1000**

<b>MAXIMUM ERROR RATE</b>	<b>SAMPLE SIZE</b>
<b>1%</b>	<b>67</b>
<b>5%</b>	<b>33</b>
<b>10%</b>	<b>27</b>
<b>15%</b>	<b>25</b>

#### **SAMPLE SIZE FORMULA FOR LOTS LESS THAN 1000**

$$\text{SAMPLE SIZE} = \frac{\text{PERFORMANCE REQUIREMENT} + 0.67}{\text{MAXIMUM ERROR RATE} + \frac{1}{3 \text{ TIMES THE LOT SIZE}}}$$

Figure 4.2. Performance Requirement, Maximum Error Rate, and Sample Size.

number of tasks if the lot size is known, that may be defective and still represent acceptable performance for the lot. For this category, the performance requirement is the MER. The performance requirement may be expressed as a percentage or, when the lot size is known, as a whole number determined by multiplying the lot size by the MER.

**4.5. QASP Documents.** When surveillance is governed by other Air Force AFIs or higher level regulations, QASP documents must comply with those AFIs or regulations. For all others, the following written documents are required in the QASP:

**4.5.1. Sampling Guides.** A sampling guide (figure 4.3) is required for each task listed on the performance requirements summary of the PWS. As a minimum, the sampling guide must contain the following sections:

**4.5.1.1. The Method of Surveillance.** Insert the method of surveillance to be used for this task; random sampling, 100-percent inspection, periodic inspection, customer complaint, etc.

**4.5.1.2. The Lot Size.** Express the lot size numerically if the actual number of times the task will occur during a surveillance period is known. Express the lot size

descriptively if the actual number of occurrences is unknown.

**4.5.1.3. Sample Size.** The sample size is the same as the lot size for 100-percent surveillance. For random sampling, determine the sample size according to figure 4.2. For all other methods except customer complaint, the QAE will determine the sample size. There is no determination of sample size in the customer complaint method of surveillance.

**4.5.1.4. The Performance Requirement.** This section contains data on acceptable and unacceptable performance levels and the surveillance period for the task.

**4.5.1.5. The Sampling Procedure.** A description of the procedure or procedures to be used in determining the actual samples to be observed. When random sampling is used, follow procedures in this manual.

**4.5.1.6. The Inspection Procedure.** An explanation of the inspection procedure or procedures that tells what will be inspected and how.

**4.5.1.7. Variations.** Any variations in performance requirements or evaluation procedures allowed during any contractually authorized phase-in period.

### VEHICLE OPERATIONS SAMPLING GUIDE #3 Vehicle Condition Monitoring

1. **Method of Surveillance:** \_\_\_\_\_.
2. **Lot Size:** \_\_\_\_\_ vehicles operated by the contractor.
3. **Sample Size:** \_\_\_\_\_ vehicles operated by the contractor.
4. **Performance Requirement:** Performance is acceptable when \_\_\_\_\_ or less defective vehicles are discovered per month. Performance is unacceptable when \_\_\_\_\_ or more defective vehicles are discovered per month.
5. **Sampling Procedure:** At the beginning of the month, list the registration numbers of all contractor-operated vehicles on a sheet of ruled paper. Beginning with the number 100, establish guide numbers by numbering the lines of the paper to correspond with the vehicle registration numbers. Using the random number table, select a quantity of guide numbers equal to the sample size. The vehicle registration numbers corresponding to the guide numbers indicate the vehicles to be sampled during the month. Schedule the inspections evenly over the month.
6. **Inspection Procedure:** Inspect the vehicles using the vehicle and equipment discrepancy and maintenance report as a guide (see AFM 77-310, volume II, chapter 6). Record defects per vehicle for each of the inspected vehicles. Any defects found that were not already noted by the contractor will cause the observation to be recorded as defective.
7. **Phase-In Period:** During the first 2 months of the contract, performance is acceptable when \_\_\_\_\_ or less defective vehicles are discovered per month.

**Figure 4.3. Sampling Guide.**

**4.5.2. AF Form 798, Quality Assurance Evaluator Decision Table (figure 4.4).** For some or all of the performance requirements listed on the PRS, it may be desirable to create a decision table to aid the evaluator in finding the source of problems identified as a result of evaluations. The decision table should list the symptoms of the problem and identify the possible sources of the

problem. Establish questions for each potential source to determine any contributing factors. Decision tables are helpful to both the QAE and the contracting officer in determining what action is appropriate when contract discrepancies are noted. They are especially helpful if the discrepancy could have resulted from government actions and not those of the contractor.



QUALITY ASSURANCE EVALUATOR DECISION TABLE			CONTRACT NO. 71245-93-0001
DEFICIENCY OR LOW-PRIORITY	PROBABLE CAUSE FACTOR IMPACTING COMPLETION ARE	WHICH WOULD RESULT FROM	SUGGESTED REVIEW POINTS AND/OR PREVENTIVE MEASURES ARE
Vehicle out of commission longer than too high	High vehicle down for maintenance hours (VPM)	Over conflict over work decompensation	Review PCSA S310021, S310030, or S310041 for individual vehicles reflecting VPM hours in excess of the reporting period available hours. If this condition exists, it is possibly found that two or more work orders were in "open" status for the same vehicle at the same time. Normally results from failure to ensure "closed" of a particular work order, and not reflecting the PCSA S310028, work order Master File Status Report, previous to indicating a new work order. Frequently noted when two or more work orders were required to satisfy maintenance work requirements.  Are charges from VPM to vehicle down for parts (VPP) status accomplished in a timely manner?  Review PCSA S310032 for individual vehicle data reflecting a very low rate of direct labor charged to VPM hours accrued. The prime indicator of this problem is that when the estimated time in maintenance status, is constantly stopped. When work is hardly ever completed single timeframe allowed by labor hour estimates.)  Determine the appropriateness of workflow prioritization and the disruptive effect caused by work activity to unrealistic application of priorities. Such as shifting technicians from one vehicle to another, shifting vehicles from one location to another for shop space, etc.
		Insufficient training	
		Improper control over workflow	

AF Form 798, JAN 85 PASSED FOR USE IN GPO: 114

Figure 4.4. Sample AF Form 798, Quality Assurance Evaluator Decision Table.

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## Chapter 5

### CONTRACTOR QUALITY CONTROL AND PREAWARD SURVEYS (PAS)

**5.1. Contractor Quality Control.** All service contracts, as outlined in FAR Subpart 46.3, contain a requirement, in the Inspection of Services contract clause, that the contractor provide and maintain an inspection system acceptable to the government. This is commonly referred to as the contractor's quality control (QC) plan. The contractor must keep records of his or her quality control inspections under this system throughout the life of the contract. (**NOTE:** The QAE must also keep records of any inspections of the contractor's quality control procedures, including QC records, for the life of the contract.) The adequacy and efficient management (by contractor personnel) of the contractor's QC plan can have a great impact on both the performance of the contract and the government's quality assurance surveillance of the contractor's performance. For this reason, it is imperative that each PWS contain specific requirements that detail what must be included in the contractor's QC plan. Further, the comprehensiveness of the contractor's QC plan must be commensurate with the complexities and criticality of the service to be contracted. The QAE, with the FAC and contracting officer, should consider making the contractor's QC plan a PRS item and perform random sampling or periodic evaluation of same, particularly in highly complex or critical services.

5.1.1. Attachment 2, paragraph 1.3, contains two quality control provisions that specify the requirements of the contractor's QC plan. One of these, or a similar provision, must be included in the PWS. The determination as to the type of provision to include in the PWS must be a mutual one between the FAC and the contracting officer. They must consider, as a minimum, the following factors:

5.1.1.1. Size of the potential contractor workforce.

5.1.1.2. Number, complexity, type, and criticality of tasks to be performed.

5.1.1.3. Size of potential contractor's management staff.

5.1.1.4. Contract dollar value.

5.1.1.5. Potential benefit of quality control requirements versus the cost of compliance.

5.1.2. For negotiated acquisitions, the proposed QC plan must be a required proposal submission, and the FAC and the contracting officer must evaluate it for compliance with the PWS requirements. In any preaward actions, the preaward survey team must review the quality control procedures of any potential contractor.

**5.2. Preaward Surveys (PAS).** When, according to FAR 9.1, DoD FAR Supplement 209.106, and Air Force FAR Supplement 5309.106, and applicable solicitation provisions, the contracting officer determines that a preaward survey is required on a potential contractor, the FAC must assign technical experts to either perform the technical review or assist the Defense Contract Management Area Office (DCMAO) as requested by the contracting officer. The technical review is an objective review of the potential contractor's technical ability to perform the services. The technical review may cover such areas as performance plans, quality controls, personnel recruitment and training, workload factors for manpower use, handling of peak workloads, equipment availability, etc. The results of the PAS must be a concise report that states the facts, draws a conclusion based on those facts, and provides a recommendation to the contracting officer as to the contractor's capabilities to perform the contract.

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## Chapter 6

### QUALITY ASSURANCE SURVEILLANCE REQUIREMENTS

**6.1. QAE Qualifications.** QAEs:

6.1.1. Must have technical knowledge and experience in the area to be contracted that is sufficient to permit them to observe contractor performance and to determine whether the service does or does not meet the contract standards.

6.1.2. Should have enough retainability to perform surveillance until contract completion.

6.1.3. Must know, understand, and comply with FAR Part 3, 5 C.F.R. Part 2635, AFP 70-1 and this manual.

**6.2. QAE Nominations and Appointments.** QAEs should be appointed as early in the acquisition cycle as possible. This will enable them to actively participate in the requirements definition process and the administration associated with contracting activities prior to award. Ideally, the QAE should be responsible for preparing the PWS and QASP, as well as performing surveillance. In all cases, appointment must be no later than 90 days before contract start. Nominations and appointments must be in

writing. Nomination letters, or documentation to support appointment, must contain as a minimum:

- 6.2.1. The qualifications and retainability of the individual.
- 6.2.2. The training provided, or to be provided, to the individual.
- 6.2.3. Justification for nomination and appointment of an individual that does not meet the qualifications in paragraph 6.1.
- 6.2.4. A statement that the nominee's records have been reviewed and that he or she appears suitable for QAE duties.
- 6.2.5. A statement that the nominee or appointee does not have and will not be given other duties that will interfere with their QAE duties, and that QAE duties must come first.
- 6.2.6. A statement that performance of QAE duties is a critical element on civilian appraisals when civilians are appointed as QAEs.

**6.3. Performing Surveillance.** Actual surveillance must be done as stated in the QASP for the instant contract. Surveillance includes scheduling, observing, documenting, accepting service, and determining payment due.

**6.3.1. Scheduling Surveillance:**

6.3.1.1. The QAE is responsible for developing a monthly schedule of surveillance activities based on the QASP's requirements. The schedule must be completed not later than 7 calendar days before the beginning of the period it covers. The QAE must give one copy of the schedule to the contract administrator before the start of the surveillance period. The FAC must either be given a copy for review or must review the original and return it to the QAE not later than the last day of the month preceding the month scheduled. The AF Form 801, **Quality Assurance Evaluator Schedule** (figure 6.1) may be used to document scheduling. Computer-generated schedules or locally devised forms may also be used if they contain the same information contained on the AF Form 801.

6.3.1.2. For tasks to be surveyed by random sampling procedures, random selection must be generated by either a statistically valid computer program, such as the Air Force Logistic Management Agency's Automated Quality Assurance Evaluator Scheduling Program (QASP version 4.0 or later); by the interval technique according to the procedures in attachment 3 if the lot population is homogeneous; or by using a random number table as shown in attachment 4. When selecting samples, the number of selections should exceed the required sample size by at least 10 percent to allow for situations where a selected sample cannot be evaluated. For example, if the sample size is 25, select 28 samples. The QAE must make every attempt to evaluate the first 25 samples selected but, should surveillance of the 15th sample be impossible, then

the QAE must evaluate the 26th selected sample instead. The QAE must evaluate only 25 samples. If the QAE does not evaluate the total number of required samples, the samples not evaluated are deemed to have been performed according to the contract requirements and are recorded as acceptable.

**6.3.2. Observing Contractor Performance.** The QAE must inspect task performance by either watching actual task performance, physically checking an attribute of the completed task, checking a management information report, or otherwise inspecting the task or its results to determine whether or not the performance meets the standards contained in the contract.

**6.3.3. Documenting Surveillance.** Documenting surveillance is of major importance to the total process of surveillance. The contracting officer cannot properly administer the contract without documentation of actual surveillance. All documentation resulting from surveillance must be made a permanent part of the contract file. The QAE must keep the documentation files during the surveillance period, but either monthly or at the conclusion of the contract, as directed by the contracting officer, the QAE must give the files to the contracting officer for inclusion in the official contract file.

6.3.3.1. The QAE must document each surveillance as it is done. The AF Form 799, **Surveillance Activity Checklist** (figure 6.2) may be used for this purpose. Each time the QAE documents his or her surveillance actions, it must contain as a minimum:

6.3.3.1.1. The contract number.

6.3.3.1.2. A short description of the requirement being surveyed.

6.3.3.1.3. The contract paragraph number referencing the requirement.

6.3.3.1.4. The method of surveillance, and the observations.

6.3.3.1.5. The date, time and location of surveillance.

6.3.3.1.6. The results of the surveillance and the signature and title of the individual doing the surveillance. If performance is unacceptable, the QAE must document the areas not in compliance with the contract requirements.

6.3.3.2. When performance is determined unacceptable, the QAE must inform the contractor's on-site representative that performance is unacceptable and why, and request his or her initials and date on the surveillance form (AF Form 799 or locally devised form). By initialing and dating the form, the contractor's on-site representative is acknowledging that he or she has been told of the unacceptable performance. He or she is not necessarily agreeing that the performance is unacceptable. If the contractor wants to dispute the results of the surveillance, the QAE must refer them to the contracting officer for resolution of the matter.

QUALITY ASSURANCE EVALUATOR SCHEDULE				CONTRACT NO. F12J55-03-C0001	WEEK OF 15 March	MONTH YEAR March 1993
DAY	Operate 1200	Operate 1400	Operate 1600	Operate 1800	Operate 2000	Operate 2200
15 March	PM	0600				
16 March						
17 March						
18 March	AM					
19 March	PM	0800	0700			
20 March						
21 March						
WEEK TOTAL						
MONTH TOTAL						

AF Form 801, MAR 91

REMARKS: AIRCRAFT ARE INSPECTED

FOR OFFICIAL USE ONLY (When Filled in)  
COULD NO LONGER APPLY AFTER COMPLETION OF SCHEDULED WEEK

Figure 6.1. Sample AF Form 801, Quality Assurance Evaluator Schedule.

SURVEILLANCE ACTIVITY CHECKLIST (To be performed (Daily) (Monthly), etc.)					COMMITTEE NO.	FILE NO.
Activity	Contract/Assignment Number	Method of Surveillance	Date/Account Name	Where/When/How	Comments	
Operate Taxi	U-5-1	Periodic Surveillance	13 Mar 1993	Taxi Dispatch Office	Yes	
Operate Scheduled Bus Services	U-5.2.1	Random Sampling	0800 19 Mar 1993	Bus Stop C	Yes	
Operate Unscheduled Bus Services	U-5.2.2	100% Surveillance	0700 19 Mar 1993	Band Building	NO, Bus arrived in minutes late. Standard 10 & minutes late. Agree upon find.	
				ETC.		

AF Form 799, 1 JAN 79  
REPLACES FORM 799, 1 JAN 79

Figure 6.2. Sample of AF Form 799, Surveillance Activity Checklist.

CONTRACT DISCREPANCY REPORT			
1. CONTRACT NUMBER F12145-94-00001		2. REPORT NUMBER FOR THIS DISCREPANCY 001	
3. TO: Contract and Manager Name Acme Motor Company Mr. Bob Smith		4. FROM: Name of DAF TSgt Jones	
5. DATES			
6. PREPARED 28 Mar 94	7. RETURNED BY CONTRACTOR	8. ACTION COMPLETE	
9. DISCREPANCY OR PROGRAM (Delete as needed, include reference to PRS item but cite continuation sheet if necessary) There have been 10 unscheduled bus requirements during this quarterly surveillance period (Jan 93 - Mar 93). On three of the requirements, the contractor did not arrive within four minutes of the agreed time as required by C-5.2.2, and PRS item 3. On all three occasions, he arrived over 10 minutes late. The performance requirement is 15%, therefore, the requirement was performed unsatisfactorily since only 7 (1.3 rounded) noncompliances are allowed.			
10. SIGNATURE OF CONTRACTING OFFICER			
11. TO: Contracting Officer		FROM: Contractor	
12. CONTRACTOR RESPONSE AS TO CAUSE, CORRECTIVE ACTION AND ACT ONE TO PREVENT REOCCURRENCE. ATTACH CONTINUATION SHEET IF NECESSARY. (Include explanation of program procedures if new or changed.)			
13. SIGNATURE OF CONTRACTOR REPRESENTATIVE			
14. GOVERNMENT EVALUATION (Acceptance, partial acceptance, rejection, attach continuation sheet if necessary)			DATE
15. GOVERNMENT ACT ONE (Delayed payment, late notice, nonpayment, other)			
16. COMMENTS			
17. CLOSURE			
18. CONTRACTOR NOTIFIED		19. SIGNATURE	
20. DATE		21. DATE	
22. ALO		23. DATE	

AF FORM 802

PREVIOUS EDITION WILL BE USED

GPO: Government Printing Office 1993-544578-01

Figure 6.3. Sample AF Form 802, Contract Discrepancy Report.

6.3.3.3. For those requirements identified in the PRS as susceptible to deductions for unsatisfactory performance, the QAE must maintain the surveillance records, by surveillance period, to record all observations in that period. At any time during the surveillance period, a total of the unacceptable observations can readily be obtained to determine the acceptability of the performance of that task and, hence, the necessity for deduction. For tasks under random sampling procedures, only those records of surveillance for samples selected according to 6.3.1.2 can be used to determine acceptability of performance for payment deduction purposes.

6.3.3.4. If, at anytime during the surveillance period, the results of surveillance show that the number of unacceptable observations during the period exceeds the performance requirement, and the QAE determines that it is not government caused (by use of the decision tables or other means), the QAE initiates an AF Form 802, **Contract Discrepancy Report (CDR)**(figure 6.3). The QAE completes blocks 1 through block 6 of the form and sends it to the contracting officer. The contracting officer must evaluate the CDR and, if appropriate, sign and send it to the contractor, return receipt requested. The contractor must complete block 9 and block 10 according to the requirements of the contract and return it to the contracting officer within 15 calendar days of receipt. Upon receipt of the contractor's response, the contracting officer, in consultation with the QAE, must evaluate the contractor's

response and take the appropriate action before payment for the month in which the CDR response was received from the contractor. The contracting officer must document the evaluation (in block 11) and action taken (in block 12) on the CDR. If deduction from payment is the appropriate action, the QAE computes the payment deduction based on the performance period in which the performance occurred. The deduction, however, is taken from the contractor's payment during the month in which the appropriate action was determined, not necessarily the month in which the unacceptable performance occurred. In the event that the contracting officer determines that issuance of the CDR to the contractor is not appropriate, the contracting officer must document the contract file as to why such action is not appropriate and notify the FAC and QAE.

6.3.3.5. The QAE is required to accept contractor services and determine payments due. At the completion of each contract payment period (usually monthly), the QAE must certify the services actually received under the contract. This certification must be in the form prescribed by the contracting officer. As a part of certifying receipt of services, the QAE must also determine the amount of payment authorized. When there is to be a payment deduction, the QAE must determine the amount of deduction according to the procedures contained in the contract and as advised by the contracting officer, and include that information in the certification.

CLARK G. FIESTER

The Assistant Secretary of the Air Force  
for Acquisition

## GLOSSARY OF ABBREVIATIONS, ACRONYMS, AND TERMS

### *Section A--Abbreviations and Acronyms*

#### *Abbreviations and Acronyms*

#### *Definitions*

<b>CDR</b>	Contract Discrepancy Report
<b>CO</b>	Contracting Officer
<b>DCMAO</b>	Defense Contract Management Area Office
<b>DoDI</b>	Department of Defense Instruction
<b>FAC</b>	Functional Area Chief
<b>FAR</b>	Federal Acquisition Regulation
<b>HQ USAF</b>	Headquarters US Air Force
<b>MAJCOM</b>	Major Command
<b>MER</b>	Maximum Error Rate
<b>MIS</b>	Management Information System
<b>OSHA</b>	Occupation Safety and Health Act
<b>PAS</b>	Preaward Survey
<b>PRS</b>	Performance Requirements Summary
<b>PWS</b>	Performance Work Statement
<b>QAE</b>	Quality Assurance Evaluator
<b>QAEP</b>	Quality Assurance Evaluation Program
<b>QAEPD</b>	Quality Assurance Evaluation Program Coordinator
<b>QASP</b>	Quality Assurance Surveillance Plan
<b>QC</b>	Quality Control
<b>VIMS</b>	Vehicle Integrated Management System

### *Section B--Terms Explained*

**Acceptance Sampling**--A form of sampling used to determine acceptability of a lot based on surveillance of selected samples from the lot. A procedure that gives a specified risk of accepting lots of given quality.

**Activity**--A work process. An activity uses inputs to generate outputs.

**Administer**--That stage of the contracting cycle in which the contracting officer makes sure that the total contract is being performed according to its terms, makes necessary changes, and ensures progress toward contract completion.

**Analyst**--A person charged with the analysis of a function for the purpose of developing contract requirements and administration documents.

**Attribute**--A characteristic of a service that is used to determine the quality of performance of that service.

**Attribute Sampling**--A form of acceptance sampling that determines the quality of a service based on a sampling of specified attributes of that service.

**Buy**--That stage of the contracting cycle in which bids or proposals are analyzed, the awardee is determined, and award is made.

**Chief, Contracting Office**--The individual responsible for operating the contracting office if the organization is not designated as a contracting squadron. For purposes of this manual it is used interchangeably with "Contracting Squadron Commander".

**Commander**--The officer responsible for the installation or activity having service functions contracted. Generally is the organizational commander of the functional area chief and, often is the commander of both the functional area chief (FAC) and, the chief of the contracting office. For example, wing commander, support group commander, logistics group commander, tenant unit commander, or commanders of subordinate commands. The exact title or position varies depending on the organizational structure and the particular service in question. (AFI 38-101)

**Contract Administrator**--The individual within the contracting office who performs the day-to-day administration of the contract. The contract administrator may also be the contracting officer.

**Contracting Squadron or Office**--The Air Force contracting squadron or office responsible for award or administration of service contracts.

**Contracting Officer**--The duly appointed government agent authorized to award or administer contracts. The contracting officer is the only person authorized to contractually obligate the government. Also see contract administrator.



**Contracting Squadron Commander**--The individual responsible for operating the contracting squadron. For purposes of this manual it is used interchangeably with "Chief, Contracting Office".

**Defect**--Any nonconformance with requirements specified in the contract.

**Defective Service**--A service output that does not meet the standard of performance specified in the contract for that service.

**Define**--That stage of the contracting cycle in which the customer states what he or she wants contracted. This stage includes funding the requirement and preparing the contract requirements documents.

**Error Rate**--The frequency at which defective service occurs.

**Functional Area**--The organization having responsibility for the actual performance of a given service whether it is performed in-house or by contract. For example, the transportation organization has responsibility for packing and crating; the civil engineering organization has responsibility for custodial services and family housing maintenance.

**Functional Area Chief**--The individual responsible for a functional area.

**Input**--Anything put into a system or process, or expended in its operation to achieve a result or output.

**Interface**--A boundary or point common to two or more similar or dissimilar command and control systems, sub-systems, or other entities against which or at which necessary information flow takes place. (Joint Pub 1-02) For purposes of this manual, a common boundary between two organizations or activities.

**Job Analysis**--The act of looking at a job as it is being done to determine what actually results. Job analysis looks at organization, workload, performance values, and resources.

**Lot**--The total number of potential service outputs in a surveillance period.

**Lot Size**--The number of service outputs in a lot.

**Organizational Analysis**--The act of looking at an organization to determine what service it provides.

**Output**--The amount of something produced by a system or process during a given time period.

**Performance Indicator**--A measurable characteristic of an output of a work process. Generally synonymous with attribute.

**Performance Requirement**--The point that divides acceptable and unacceptable performance of a task according to the performance requirement summary and the Inspection of Services clause. It is the number of defectives or maximum percent defective in the lot that is deemed acceptable. Any further defectives will require the government to effect the price computation system.

**Performance Requirements Summary**--A listing of the service outputs under the contract that are to be evaluated by the QAE on a regular basis, the surveillance methods to be used for these outputs, and the performance requirement of the listed outputs.

**Performance Value**--A composite of a standard and a performance requirement that describes the quality of an output of a work process.

**Performance Work Statement**--A document that accurately describes a service in terms of output requirements and the required quality level or standard of acceptable performance of those outputs.

**Quality Assurance**--Those actions taken by the government to assure that services meet the requirements in the statement of work. (AFM 11-1)

**Quality Assurance Evaluation Program**--The plans and procedures developed to implement and administer quality assurance requirements of this instruction for an installation.

**Quality Assurance Evaluation Program Coordinator**--The individual designated by the contracting squadron commander to manage the installation QAE program. This may or may not be a full-time, funded position depending on the installation service contract workload.

**Quality Assurance Evaluator**--A functionally qualified person who performs quality assurance functions for a contracted service.

- **Chief Quality Assurance Evaluator**--A functionally qualified person having total responsibility for quality assurance functions within a functional area or for one or more specific contracts. This responsibility is exercised through supervision and assistance in the performance of quality assurance evaluation activities of other QAEs. A Chief QAE would be appropriate when there is more than one QAE assigned to a specific contract or when there are multiple service contracts and QAEs within a functional area.
- **Alternate QAE**--A functionally qualified person who assists the Chief QAE in performance of QAE activities.

**Quality Assurance Surveillance Plan**--An organized, written document specifying the surveillance methodology to be used for surveillance of contractor performance.

**Quality Control**--A management function whereby control of quality of raw or produced material is exercised for the purpose of preventing production of defective material. (AFM 11-1). For purposes of this manual, quality control is those actions taken by a contractor to control the production of outputs to ensure that they conform to the contract requirements.

**Random Number Table**--A table of numbers arranged in random fashion. This table is used to select random samples.

**Random Sampling**--A sampling method where each service output in a lot has an equal chance of being selected.

**Recurring Services**--Services that are required regularly and or repeatedly.

**Sample--**A sample consists of one or more service outputs drawn from a lot. The output or outputs are used in quality assurance surveillance.

**Sampling Guide--**The part of a surveillance plan that contains all the information needed to perform surveillance of the service outputs.

**Sampling Plan--**A plan that indicates the performance requirement, the number of units from each lot that are to be inspected, and the criteria for determining the acceptability of the lot (acceptance and rejection numbers). The sampling plan is used to develop the sampling guide.

**Standard--**An exact value, a physical entity, or an abstract concept, established and defined by authority, custom, or common consent to serve as a reference, model, or rule in measuring quantities or qualities, establishing practices or procedures, or evaluating results. A fixed quantity or quality. (Joint Pub 1-02) For purposes of this manual, a defined measure of comparison.

**Standardized Performance Work Statement (PWS)--**A PWS for a specific service that is prepared by a major command or higher level functional area and required for use by subordinate organizations when such services are contracted.

**System--**Any organized assembly of resources and procedures united and regulated by interaction or interdependence to accomplish a set of specific functions. (Joint Pub 1-02) For purposes of this instruction, any group of interacting, interrelated, or interdependent elements forming a collective entity.

**Tree Diagram--**A visual representation of the major functions performed by a system that shows its parts and subparts.

**Work--**A series of actions that bring about an end result.

**PERFORMANCE WORK STATEMENT (PWS) FORMAT**

**(Cover Page)**

**PERFORMANCE WORK STATEMENT  
FOR  
(SERVICE)**

**DATE: XXXX 19XX**

## SECTION C

**PERFORMANCE WORK STATEMENT  
FOR  
(SERVICE)**

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## SECTION C-1

## GENERAL INFORMATION

**1.1. SCOPE OF WORK.** The contractor shall provide all personnel, equipment, tools, materials, supervision, and other items and services necessary to perform (INSERT NAME OF SERVICE) as defined in this performance work statement (PWS), except as specified in Section C-3 as government-furnished property and services, at (INSERT NAME OF INSTALLATION). The contractor shall perform to the standards in this contract. The estimated quantities of work are listed in Technical Exhibit 2, Workload Estimates.

**1.2. CONTRACTOR PERSONNEL:**

**1.2.1. Contract Manager.** The contractor shall provide a contract manager who shall be responsible for the performance of the work. The name of this person, and an alternate or alternates who shall act for the contractor when the manager is absent, shall be designated in writing to the contracting officer.

**1.2.1.1.** The contract manager or alternate shall have full authority to act for the contractor on all contract matters relating to daily operation of this contract.

**1.2.1.2.** The contract manager or alternate shall be available during normal duty hours within \_\_\_\_ minutes to meet on the installation with government personnel (designated by the contracting officer) to discuss problem areas. After normal duty hours, the manager or alternate shall be available within \_\_\_\_ hour or hours.

**1.2.1.3.** The contract manager and alternate or alternates must be able to read, write, speak, and understand English.

**1.2.2. Contractor Employees.** The contractor shall not employ persons for work on this contract if such employee is identified to the contractor by the contracting officer as a potential threat to the health, safety, security, general well-being or operational mission of the installation and its population.

**1.2.2.1.** Contractor personnel shall present a neat appearance and be easily recognized as contractor employees. (INCLUDE SPECIFIC REQUIREMENTS FOR EITHER UNIFORMS OR BADGES AND ANY CLEANLINESS OR SANITATION STANDARDS FOR PERSONNEL OR CLOTHING.)

**1.2.2.2.** The contractor shall make sure employees have the following current and valid professional certifications before starting work under this contract. (ANY CERTIFICATION OR LICENSING REQUIREMENTS NECESSARY TO PERFORM MUST BE STATED HERE. EXAMPLES ARE HEALTH CERTIFICATES FOR FOOD SERVICE ATTENDANTS AND COMMERCIAL DRIVERS LICENSES FOR CERTAIN TRANSPORTATION SERVICES.)

**1.2.2.3.** The contractor shall not employ any person who is an employee of the US Government if employing that

person would create a conflict of interest. Additionally, the contractor shall not employ any person who is an employee of the Department of the Air Force, either military or civilian, unless such person seeks and receives approval according to AFR 30-30 (for military) or AFR 40-735 (for civilian). The contractor shall not employ any person who is an employee of the Department of the Air Force if such employment would be contrary to the policies in AFR 79-1.

**1.2.2.4.** The contractor is cautioned that off-duty active military personnel hired under this contract may be subject to permanent change of station, change in duty hours, or deployment. Military Reservists and National Guard members may be subject to recall to active duty. The abrupt absence of these personnel could adversely affect the contractor's ability to perform, however, their absence at any time shall not constitute an excuse for nonperformance under this contract.

**1.2.3. Security Requirements.** (INCLUDE INSTALLATION AND CONTRACT OR REQUIREMENT-SPECIFIC SECURITY REQUIREMENTS OF THE CONTRACTOR AND EMPLOYEES HERE. THIS SHALL INCLUDE BASE PASS REQUIREMENTS, SECURITY CLEARANCE REQUIREMENTS, ETC. DO NOT DUPLICATE SECURITY CLAUSES OR SPECIAL PROVISIONS REQUIRED IN THE SOLICITATION AND CONTRACT BY FAR AND ITS SUPPLEMENTS.)

**1.2.4. Employee Training.** (SPECIFY ANY TRAINING OF EMPLOYEES THAT IS REQUIRED. SPECIFY WHETHER IT IS TO BE FURNISHED BY THE CONTRACTOR OR THE GOVERNMENT. IF GOVERNMENT TRAINING IS FURNISHED, INCLUDE IN THIS SUBPARAGRAPH THE SPECIFICS AS TO WHEN AND WHERE IT WILL BE FURNISHED, HOW IT WILL BE REQUESTED, ETC. LIST THE TRAINING AS GOVERNMENT-FURNISHED SERVICE IN SECTION C-3.)

**1.3. QUALITY CONTROL:**

**1.3.1.** In compliance with the contract clause entitled "Inspection of Services" (SPECIFY THE FULL TITLE OF THE CLAUSE AND ITS LOCATION IN THE CONTRACT), the contractor shall provide a Quality Control Plan that contains, as a minimum, the items listed in 1.3.2 to the contracting officer for acceptance not later than the pre-performance conference. The contracting officer will notify the contractor of acceptance or required modifications to the plan before the contract start date. The contractor shall make appropriate modifications and obtain acceptance of the plan by the contracting officer before the contract start date. (AMEND THE TIMES

FOR SUBMISSION AS APPROPRIATE FOR THE ACQUISITION. THE TIMES MUST ALLOW FOR AN ACCEPTED PLAN BEFORE CONTRACT START DATE UNLESS THE CHIEF OF THE CONTRACTING OFFICE AND THE FUNCTIONAL AREA CHIEF HAVE MADE A WRITTEN DETERMINATION FOR THE CONTRACT FILE THAT THE URGENCY OF CONTRACT START PRECLUDES ACCEPTANCE OF THE PLAN BEFORE THE CONTRACT START DATE.)

1.3.2. The plan shall include:

1.3.2.1. A description of the inspection system to cover all services listed on the performance requirements summary (PRS). Description shall include specifics as to the areas to be inspected on both a scheduled and unscheduled basis, frequency of inspections, and the title and organizational placement of the inspectors. Additionally, control procedures for any government provided keys or lock combinations shall be included.

1.3.2.2. A description of the methods to be used for identifying and preventing defects in the quality of service performed.

1.3.2.3. A description of the records to be kept to document inspections and corrective or preventive actions taken.

1.3.3. The records of inspections shall be kept and made available to the government throughout the contract performance period and for the period after contract completion until final settlement of any claims under this contract.

**1.4. QUALITY ASSURANCE.** According to the Inspection of Services clause (INSERT THE SPECIFIC CLAUSE TITLE AND CITATION AND LOCATION IN THE CONTRACT), the government will evaluate the contractor's performance under this contract. For those tasks listed on the PRS (Technical Exhibit 1), the quality assurance evaluator (QAE) or evaluators will follow the methods of surveillance specified in this contract. Government personnel will record all surveillance observations. When an observation indicates defective performance, the QAE will require the contract manager or representative at the site to initial the observation. The initialing of the observation does not necessarily constitute concurrence with the observation, only acknowledgment that he or she has been made aware of the defective performance. Government surveillance of tasks not listed in the PRS or by methods other than those listed in the PRS (such as provided for by the Inspection of Services clause) may occur during the performance period of this contract. Such surveillance will be done according to standard inspection procedures or other contract provisions. Any action taken by the contracting officer as a result of surveillance will be according to the terms of this contract.

1.4.1. **Performance Evaluation Meetings.** The contracting officer may require the contract manager to

meet with the contracting officer, contract administrator, QAE, and other government personnel as deemed necessary. The contractor may request a meeting with the contracting officer when he or she believes such a meeting is necessary. Written minutes of any such meetings shall be recorded in the contract and signed by the contract manager and the contracting officer or contract administrator. If the contractor does not concur with any portion of the minutes, such nonconcurrence shall be provided in writing to the contracting officer within 10 calendar days following receipt of the minutes.

**1.5. PHYSICAL SECURITY.** The contractor shall be responsible for safeguarding all government property provided for contractor use. At the end of each work period, all government facilities, equipment and materials shall be secured.

1.5.1. **Key Control.** The contractor shall establish and implement methods of making sure all keys issued to the contractor by the government are not lost or misplaced and are not used by unauthorized persons. The contractor shall not duplicate any keys issued by the government.

1.5.1.1. The contractor shall immediately report to the QAE or contracting officer any occurrences of lost or duplicated keys.

1.5.1.2. In the event keys, other than master keys, are lost or duplicated, the contractor may be required, upon written direction of the contracting officer, to rekey or replace the affected lock or locks without cost to the government. The government may, however, at its option, replace the affected lock or locks or perform rekeying and deduct the cost of such from the monthly payment due the contractor. In the event a master key is lost or duplicated, all locks and keys for that system shall be replaced by the government and the total cost deducted from the monthly payment due the contractor.

1.5.1.3. The contractor shall prohibit the use of keys issued by the government by any persons other than the contractor's employees and the opening of locked areas by contractor employees to permit entrance of persons other than contractor employees engaged in performance of contract work requirements in those areas.

1.5.2. **Lock Combinations.** (INCLUDE AS REQUIRED) The contractor shall control access to all government provided lock combinations to preclude unauthorized entry.

**1.6. HOURS OF OPERATION:**

1.6.1. **Normal Hours of Operation.** The contractor shall perform the services required under this contract during the following hours: (SPECIFY THE DAYS AND DUTY HOURS DURING WHICH SERVICES SHALL BE PERFORMED)

1.6.1.1. **Holidays.** (SPECIFY HOLIDAY REQUIREMENTS BY EITHER STATING WHICH DAYS PERFORMANCE WILL NOT BE REQUIRED

OR STATING PERFORMANCE HOUR REQUIREMENTS FOR SUCH HOLIDAYS.)

1.6.2. **Emergency or Special Event Services.** (IF THE REQUIREMENT IS SUCH THAT SERVICES MAY BE REQUIRED OUTSIDE OF THE NORMAL DUTY HOURS OF OPERATION FOR THE CONTRACT, SUCH AS PHOTOGRAPHY SERVICES THAT MAY BE REQUIRED AT ODD HOURS, SPECIFY THE RESPONSE TIME REQUIREMENTS. INCLUDE AS TWO SEPARATE REQUIREMENTS IF NECESSARY.)

1.6.3. **Performance of Services During Crisis Declared by the National Command Authority or Overseas Combatant Commander.** (IF ANY OR ALL OF THE SERVICES TO BE PERFORMED UNDER THE CONTRACT HAVE BEEN DETERMINED TO BE ESSENTIAL FOR PERFORMANCE DURING CRISIS AND, ACCORDING TO DEPARTMENT OF DEFENSE INSTRUCTION (DODI) 3020.37 AND AIR FORCE IMPLEMENTATION THEREOF, IT IS DETERMINED THAT THE CONTRACTOR WILL BE REQUIRED TO PERFORM DURING CRISIS, SPECIFY THE HOURS OF OPERATION REQUIRED AND THE PROCEDURES FOR NOTIFICATION TO THE CONTRACTOR THAT SUCH DUTY HOURS ARE IN EFFECT. SPECIFIC CONTRACT REQUIREMENTS ARE PROVIDED IN SECTION C-5 AND SHOULD BE CROSS-REFERENCED HEREIN.)

1.7. **CONSERVATION OF UTILITIES.** The contractor shall make sure employees practice utilities

conservation. The contractor shall be responsible for operating under conditions that prevent the waste of utilities to include:

1.7.1. Lights shall be used only in areas where work is actually being performed.

1.7.2. Employees shall not adjust mechanical equipment controls for heating, ventilation, and air conditioning systems.

1.7.3. Water faucets or valves shall be turned off when not in use.

1.7.4. Environmental and Hazardous Materials Handling. (INCLUDE ANY GENERAL REQUIREMENTS REGARDING THE CONTRACTOR'S RESPONSIBILITIES FOR ENVIRONMENTAL PROTECTION OR HAZARDOUS MATERIAL HANDLING. SPECIFIC REQUIREMENTS SHOULD BE ADDRESSED IN SECTION C-5 FOR TASKS REQUIRING HANDLING OF HAZARDOUS MATERIALS.)

1.8. **RECORDS.** The contractor shall be responsible for creating, maintaining, and disposing of only those government required records that are specifically cited in this PWS or required by the provisions of a mandatory directive listed in section C-6, Applicable Publications and Forms. If requested by the Government, the contractor shall provide the original record, or a reproducible copy of any such record within 5 working days of receipt of the request.

## SECTION C-2

### DEFINITIONS

#### 2.1. GENERAL DEFINITIONS:

2.1.1. **Defective Service.** A service output that does not meet the standard of performance specified in the contract for that service.

2.1.2. **Lot.** The total number of potential service outputs in a surveillance period.

2.1.3. **Performance Requirement.** The point that divides acceptable and unacceptable performance of a task according to the performance requirement summary and the Inspection of Services clause. It is the number of defectives or maximum percent defective in the lot that is deemed acceptable. Any further defectives will require the government to effect the price computation system.

2.1.4. **Performance Requirements Summary.** A listing of the service outputs under the contract that are to be evaluated by the QAE on a regular basis, the surveillance methods to be used for these outputs, and the performance requirement of the listed outputs.

2.1.5. **Quality Assurance.** A planned and systematic pattern of all actions necessary to provide confidence that adequate technical requirements are established; products and services conform to established technical

requirements; and satisfactory performance is achieved. For purposes of this manual, quality assurance refers to actions by the government.

2.1.6. **Quality Assurance Evaluator.** A functionally qualified person who performs quality assurance functions for a contracted service.

2.1.7. **Quality Control.** Those actions taken by a contractor to control the production of outputs to ensure that they conform to the contract requirements.

2.1.8. **Random Sampling.** A sampling method where each service output in a lot has an equal chance of being selected for quality assurance surveillance.

2.1.9. **Sample.** A sample consists of one or more service outputs drawn from a lot for quality assurance surveillance.

**2.2. TECHNICAL DEFINITIONS.** (INCLUDE DEFINITIONS PECULIAR TO THE PARTICULAR PWS REQUIREMENTS.)

## SECTION C-3

### GOVERNMENT-FURNISHED PROPERTY AND SERVICES

**3. GENERAL INFORMATION.** The government shall provide the facilities, equipment, materials, and services listed here or in Technical Exhibits 5a through Technical Exhibit 5c.

#### 3.1. Government-Furnished Property:

(USE THE FOLLOWING PARAGRAPH IF FACILITIES WILL BE FURNISHED AND THERE ARE HAZARDS FOR WHICH WORK-AROUNDS HAVE BEEN ESTABLISHED ACCORDING TO AFR 127-12.)

3.1.1. **Government-Furnished Facilities.** The government shall furnish or make available facilities described in Technical Exhibit 5a. Government facilities have been inspected for compliance with the Occupational Safety and Health Act (OSHA). Any hazards for which work-arounds have been established are included in Technical Exhibit 5a. The government will correct these hazards according to base-wide government developed plans of abatement taking into account safety and health priorities. A higher priority for correction will not be assigned to the facilities provided hereunder merely because of this contract initiative. The identification of any hazardous conditions does not warrant or guarantee that no other possible hazards exist, or that the work-around procedures currently employed will be adequate to meet the responsibilities of the contractor. Compliance with the OSHA and other applicable laws and regulations for the protection of employees is exclusively the obligation of the contractor. Further, the government will assume no liability or responsibility for the contractor's compliance or noncompliance with such requirements, with the exception of the aforementioned responsibility to make corrections according to approved plans of abatement subject to base-wide priorities. Before any modification of the facilities performed by the contractor at his or her expense, the contractor must give the contracting officer documentation describing, in detail, the modification requested. No alterations to the facilities shall be made without specific written permission from the contracting officer. In the case of alterations necessary for compliance with the OSHA, such permission shall not be unreasonably withheld. The contractor shall return the facilities to the government in the same condition as received, fair wear and tear and approved modifications

excepted. These facilities shall be used only in the performance of this contract.

(USE THE FOLLOWING PARAGRAPH IF FACILITIES ARE TO BE FURNISHED AND NO HAZARDS ARE FOUND.)

3.1.1. **Government-Furnished Facilities.** The government shall furnish or make available facilities described in Technical Exhibit 5a. Government facilities have been inspected for compliance with the Occupational Safety and Health Act (OSHA). No hazards have been identified for which work-arounds have been established. Should a hazard be subsequently identified, the government corrects OSHA hazards according to base-wide government developed and approved plans of abatement taking into account safety and health priorities. A higher priority for correction will not be assigned to the facilities provided hereunder merely because of this contracting initiative. The fact that no such conditions have been identified does not warrant or guarantee that no possible hazard exists, or that work-around procedures will not be necessary or that the facilities as furnished will be adequate to meet the responsibilities of the contractor. Compliance with the OSHA and other applicable laws and regulations for the protection of employees is exclusively the obligation of the contractor. Further, the government will assume no liability or responsibility for the contractor's compliance or noncompliance with such requirements, with the exception of the aforementioned requirement to make corrections according to approved plans of abatement subject to base-wide priorities. Before any modification of the facilities performed by the contractor at his or her expense, the contractor must furnish the contracting officer documentation describing, in detail, the modification requested. No alterations to the facilities shall be made without specific written permission from the contracting officer. In the case of alterations necessary for compliance with the OSHA, such permission shall not be unreasonably withheld. The contractor shall return the facilities to the government in the same condition as received, fair wear and tear and approved modifications excepted. These facilities shall only be used in performance of this contract.

3.1.2. **Government-Furnished Equipment.** The government shall provide the contractor equipment listed in Technical Exhibit 5b. (INCLUDE ONLY IF EQUIPMENT IS TO BE FURNISHED TO THE CONTRACTOR.)



3.1.2.1. **Equipment Inventory.** An inventory of government-furnished equipment must be done not later than 5 calendar days before start of the contract, within 10 calendar days of the start of any option periods, and not later than 10 calendar days before completion of the contract period (including any option periods). The contractor and a government representative (identified by the contracting officer) shall conduct a joint inventory of all government-furnished equipment and the contractor shall sign a receipt for all equipment provided by the government. Items of equipment missing or not in working order shall be recorded and the contracting officer notified in writing. The contractor and the government representative shall jointly determine the working order and condition of all equipment and document their findings on the inventory. In the event of disagreement between the contractor and the government representative on the working order and condition of equipment, the disagreement shall be treated as a dispute under the contract clause entitled "Disputes."

(INCLUDE ONE OF THE FOLLOWING PARAGRAPHS.)

3.1.2.2. **Obtaining Replacement of Government-Furnished Equipment.** The contractor shall submit requests for replacement of government-furnished equipment to the QAE for processing. Such requests shall specify the reason for the replacement request.

**OR**

3.1.2.2. **Replacement of Government-Furnished Equipment.** Should any item of government-furnished equipment require replacement, the contractor shall be responsible for such replacement at no cost to the government.

3.1.3. **Government-Furnished Materials:**

(IF ANY EXPENDABLE MATERIALS ARE TO BE PROVIDED, INSERT ONE OF THE FOLLOWING PARAGRAPHS.)

The Government shall furnish an initial inventory of materials (approximately a \_\_\_\_\_ day stock level) as listed in Technical Exhibit 5c. These materials shall be inventoried not later than 5 working days before contract start by the contractor and a government representative designated by the contracting officer. Any missing items shall be annotated on the inventory and the contracting officer notified. Any disagreements between the contractor and the government representative on the materials inventory shall be treated as a dispute under the contract clause entitled "Disputes." Once these materials have been depleted, the contractor shall, at no cost to the government, furnish all materials required to continue performance under this contract.

**OR**

The government will provide the materials listed in Technical Exhibit 5c for performance of services by the contractor for the duration of the performance period of this contract. The initial stock of materials provided shall be inventoried not later than 5 working days before contract start by the contractor and a government representative designated by the contracting officer. Any missing items shall be annotated on the inventory and the contracting officer notified. Any disagreements between the contractor and the government representative on the materials inventory shall be treated as a dispute under the contract clause entitled "Disputes." The contractor shall be responsible for keeping enough materials on hand for the performance of the contract according to its terms. If additional materials are authorized by the contract, the contractor shall request such additional materials by providing a written request to the QAE at least 60 calendar days before the required delivery date of the materials. At the conclusion of the contract period, including any option periods, the contractor shall return all residual inventory to the government.

3.1.4. **Government-Furnished Records.** The Government shall furnish those records listed in Technical Exhibit \_\_\_\_.

**NOTE:** These records may include pending requisitions for equipment to be furnished to the contractor, pending project case files required for contract performance or control logs or registers on which the serially sequenced entries must be continued by the contractor. SF 135, Records Transmittal and Receipt, will be prepared for all records transferred, unless a duplicate record copy is kept by the government. Records transferred to the contractor will be returned to the government only if specifically required to be returned by this PWS.

**3.2. GOVERNMENT-FURNISHED SERVICES.** (IF ANY SERVICES ARE TO BE PROVIDED, LIST ONLY THOSE SERVICES TO BE SPECIFICALLY PROVIDED UNDER THIS CONTRACT. SPECIFY THE EXTENT OF THE SERVICES TO BE PROVIDED AND ANY PROCEDURES THE CONTRACTOR MUST FOLLOW IN ORDER TO OBTAIN THEM. LIST ANY SPECIAL REQUIREMENTS ASSOCIATED WITH THE USE OF ANY GOVERNMENT-FURNISHED SERVICES.)

3.2.1. Government-Furnished Utilities.

3.2.2. Telephone Services.

3.2.3. Installation Distribution.

- 3.2.4. Custodial Service.
- 3.2.5. Refuse Collection.
- 3.2.6. Insect and Rodent Control.

- 3.2.7. Grounds Maintenance.
- 3.2.8. Security Police and Fire Protection.

## SECTION C-4

### CONTRACTOR-FURNISHED ITEMS AND SERVICES

**4.1. GENERAL INFORMATION.** Except for those items or services specifically stated in section C-3 as government furnished, the contractor shall furnish everything needed to perform this contract according to all its terms.

(UNLESS THERE ARE SPECIFIC ITEMS THAT ARE REQUIRED AND IT IS IMPORTANT TO DETAIL

THEM, THE GENERAL PARAGRAPH IS ALL THAT IS REQUIRED. IF THERE ARE TO BE SPECIFIC ITEMS LISTED, MAKE SURE THE LEAD-IN TO THE LISTING STATES THAT THE LIST IS NOT ALL INCLUSIVE OF THE CONTRACTOR-FURNISHED ITEMS AND SERVICES REQUIRED TO PERFORM THE CONTRACT.)

## SECTION C-5

### SPECIFIC TASKS

**5. GENERAL INFORMATION.** (RESTATE THE BROAD CATEGORY OF SERVICE TO BE PROVIDED AS WAS DONE AT THE BEGINNING OF THE PWS. SEE PARAGRAPH 3.3.5 OF THE BASIC TEXT FOR GUIDANCE ON PREPARING THIS SECTION. THIS SECTION IS WRITTEN PRIMARILY FROM THE ACTIVITY ANALYSIS WORKSHEET. USE THE ACTIVITY DESCRIPTION AT THE TOP OF THE WORKSHEET AS THE INTRODUCTION TO THE TASKING, FOR EXAMPLE:)

**5.1. OPERATE TAXI SERVICES.** (USE THE INPUT COLUMN OF THE ACTIVITY ANALYSIS WORKSHEET TO DEFINE WHAT WORK IS REQUIRED. FOR EXAMPLE, SEE BELOW.)

5.1.1. Dispatch taxis for pick-up and delivery as requested by telephone, customer walk-in, or in writing. Customer must be picked up within four minutes of the scheduled time. (DO NOT TELL THE CONTRACTOR "HOW TO" DO THE TASK UNLESS PROCEDURAL GUIDANCE IS ABSOLUTELY NECESSARY FOR SAFETY, INTERACTION WITH OTHER GOVERNMENT OFFICES, OR IS MANDATORY UNDER GOVERNMENT TECHNICAL ORDERS. IF A GOVERNMENT TECHNICAL ORDER OR INSTRUCTION IS CITED IN WHOLE OR IN PART, THAT INSTRUCTION, OR PORTION THEREOF, MUST BE INCLUDED IN SECTION C-6.)

**5.2. OPERATE BUS SERVICES:**

5.2.1. **Operate Scheduled Bus Services.**

5.2.2. **Operate Unscheduled Bus Services.**

(IF NECESSARY, THE FOLLOWING TWO SUBCATEGORIES CAN BE COMBINED INTO ONE.)

5.2.2.1. **Emergency Bus Services:**

5.2.2.1.1. When notified by the contracting officer, the contractor shall respond to emergency situations as described below. The initial tasking may be verbal but will be followed by written direction.

5.2.2.1.2. (DEFINE THE REQUIREMENTS BASED UPON HISTORICAL DATA IF SUCH DATA IS AVAILABLE.)

5.2.2.1.3. The contractor shall respond as described below to approximately (NUMBER AND TYPE SITUATION) during a year.

5.2.2.2. **Special Event Services.**

5.2.2.2.1. (DESCRIBE THE SPECIFIC SUPPORT REQUIRED BASED ON HISTORICAL DATA. IF THERE IS NO HISTORICAL DATA AVAILABLE, ADVISE THE CONTRACTOR ACCORDINGLY.)

5.2.2.2.2. The contractor shall respond as described below to approximately (NUMBER AND TYPE SITUATION) during a year.

**5.3. EMERGENCY VEHICLE SERVICES:**

5.3.1. **Wrecker Services.**

5.3.2. **Other Emergency Vehicle Services.**

**5.4.** Requirements beyond the capability of the contractor may be augmented by the government, at its option, when the government deems such action to be necessary.

**5.5. EQUIPMENT MAINTENANCE.** (INCLUDE SPECIFIC REQUIREMENTS FOR MAINTENANCE OF GOVERNMENT-FURNISHED EQUIPMENT OR FACILITIES IF THE CONTRACTOR IS TO BE REQUIRED TO PROVIDE THE MAINTENANCE.)

**5.6. PERFORMANCE OF SERVICES DURING CRISIS DECLARED BY THE NATIONAL**

**COMMAND AUTHORITY OR OVERSEAS COMBATANT COMMANDER.** (WHEN IT HAS BEEN DETERMINED THAT THE CONTRACTOR WILL BE REQUIRED TO PERFORM ANY OR ALL OF THE CONTRACT REQUIREMENTS DURING CRISIS ACCORDING TO DODI 3020.37 AND AIR FORCE IMPLEMENTING GUIDANCE OR AFI, INCLUDE ALL CONTRACTOR REQUIREMENTS IN THIS SECTION OR SPECIFY THAT SUCH REQUIREMENTS ARE

CONTAINED IN AN OPTION (OR ALTERNATIVE) PWS PROVIDED AS A SEPARATE CONTRACTUAL ATTACHMENT. IF THE REQUIREMENT IS TO CONTINUE PERFORMANCE AS IS DONE UNDER NONCRISIS SITUATIONS, SO STATE. CONTRACTOR PERSONNEL REQUIREMENTS, CONTINGENCY PLANNING REQUIREMENTS AND DUTY HOURS MAY BE INCLUDED IN SECTION C-1 WITH CROSS REFERENCES.)

## SECTION C-6

### APPLICABLE PUBLICATIONS AND FORMS

Publications and forms that apply to the PWS are listed below. The publications and forms have been coded as mandatory or advisory. The contractor is obligated to follow those publications and use those forms coded as mandatory to the extent specified in other sections of this PWS. The contractor shall be guided by those publications or use those forms coded advisory to the extent necessary to accomplish requirements in this PWS. All publications and forms listed shall be provided by the government at the start of the contract.

#### (USE ONE OR THE OTHER OF THE FOLLOWING.)

It is the responsibility of the contractor to establish follow-on requirements with the publications distribution office (SPECIFY HOW).

#### - OR -

The government will provide follow-on requirements to the contractor when changes occur.

Supplements or amendments to listed publications from any organizational level may be issued during the life of the contract. The contractor shall immediately implement those changes that result in a decrease or no change in the contract price and notify the contracting officer in writing of such change. Should a decrease in contract price result, the contractor shall provide a proposal for a reduction in the contract price to the contracting officer. Before implementing any change that will result in an increase in contract price, the contractor shall submit to the contracting officer a price proposal within 30 calendar days following receipt of the change by the contractor. The contracting officer and the contractor shall negotiate the change into the contract under the provisions of the contract clause entitled "Changes." Failure of the contractor to submit a price proposal within 30 calendar days following receipt of the change entitles the government to performance according to such change at no increase in contract price (unless the time requirement is waived by the contracting officer according to paragraph (c) of the Changes clause).

Publication No. Section/Para/Line	Title	Date	Mandatory/ Advisory
TM/M.O.1-1-1	Cleaning of Equipment	24 Jun 79 Chg2 27 Mar 80	A
TM/T.O.1-1-2 Section V,VI Para 5-1 - 5-19 Para 6-1 - 6-13	Corrosion Control	15 Dec 77 Chg4 20 Dec 79	M
AFR 30-30	Standards of Conduct	Mar 89	A
AFR 40-735	Civilian Conduct and Responsibility	Mar 78	A
AFR 79-1	Industrial Labor Relations Activities	Jul 85	A

AFR 127-12

Air Force  
Occupational Safety,  
Fire Prevention and  
Health Program

Mar 90

A

(WHEN LISTING FORMS, INDICATE THOSE FORMS THAT ARE LOCALLY REPRODUCIBLE AND FOR WHICH THE CONTRACTOR MUST INCUR REPRODUCTION EXPENSE. GIVE AN ESTIMATE OF THE USAGE RATE OF THESE FORMS.)

## TECHNICAL EXHIBIT 1

### PERFORMANCE REQUIREMENTS SUMMARY

**1. PERFORMANCE REQUIREMENTS SUMMARY.** The PRS charts and AF Forms 713 at the end of this exhibit:

- 1.1. List the PWS requirements that the government will surveil. The absence of any contract requirement from the PRS shall not detract from its enforceability nor limit the rights or remedies of the government under any other provision of the contract, including the clauses entitled "Inspection of Services" and "Default."
- 1.2. Define the standard of performance for each listed service.
- 1.3. Set forth the maximum allowable deviation from standard performance for that service that may occur before the government will invoke the payment computation formula, resulting in a payment of less than 100 percent of the maximum payment for the listed service.
- 1.4. Define the lot used as the basis for surveillance or for payment computation purposes.
- 1.5. Set forth the surveillance methods the government will use to evaluate the contractor's performance for the listed tasks.
- 1.6. Set forth the percentage of the total contract price that the listed contract requirement represents, only if the surveillance method is either 100-percent inspection or random sampling.

**2. GOVERNMENT QUALITY ASSURANCE.**

Contractor performance will be surveilled to determine if it meets the contract standards. A variety of surveillance methods may be used.

- 2.1. Random sampling of recurring service outputs using indifference quality level (IQL) indexed sampling plans.
- 2.2. One hundred percent inspection of the output.
- 2.3. Periodic inspection of the processes or output.
- 2.4. Customer complaints.

**3. PERFORMANCE EVALUATION.** Performance of a service will be evaluated to determine whether or not it meets the performance requirements of the contract. When the performance requirement is exceeded, a Contract Discrepancy Report (CDR) will be issued to the contractor by the contracting officer. Upon evaluation of the

contractor's response to a CDR for tasks surveilled by random sampling or 100 percent inspection, the contractor's payment for the month in which the performance in question occurred will be calculated as stated in paragraph 4. The contractor shall respond to the CDR by completing block 9 and block 10 of the form and returning it to the contracting officer within 15 calendar days of receipt. In the case of CDR's issued as the result of other methods of surveillance, the contracting officer shall take appropriate measures according to the clause entitled "Inspection of Services."

**4. CONTRACTOR PAYMENT:**

4.1. For performance of a service that does not exceed the performance requirement, the contractor shall be paid the percentage of the monthly contract line item price indicated in the PRS for that service.

4.2. If performance of a service exceeds the performance requirement for a service surveilled by random sampling or 100-percent inspection, the government will calculate payment as follows:

4.2.1. The maximum contract payment per month for all services is multiplied by the maximum payment percentage for the specific service to determine the maximum payment for acceptable service. This payment is multiplied by the percentage of the sample found acceptable to determine the percentage of the contract price that the contractor will be paid for the specific service. The total number of defectives found, not just those in excess of the reject level, are used to determine the percentage of the sample found unacceptable. The percentage of the sample found unacceptable subtracted from 100 percent determines the percentage found acceptable.

4.2.2. For those services that are performed less frequently than monthly, the payment computation will be determined for the entire surveillance period and will be based on the total maximum payment available for the entire surveillance period.

4.2.3. Any deductions from payment shall be taken from the payment for the month in which the contracting officer makes the determination that deduction is appropriate,

regardless of the period in which the performance occurred.

**5. EXAMPLE OF PAYMENT COMPUTATION.** For this example, assume the following: (1) a performance requirement of 3, (2) a corresponding sample size of 25, (3) a lot size of 500, and (3) that 10 defective samples were found.

(1) Maximum contract line item payment per month	\$10,000
(2) Maximum payment percentage for the service	<u>X</u> 5%

(3) Maximum payment for acceptable services	\$ 500
(4) Percentage of sample found unacceptable (10/25, defectives divided by sample size, X 100)	40%
(5) Percentage of sample found acceptable (100% - Line 4)	60%
(6) Payment for percentage of acceptable services (Line 3 times Line 5)	\$ 300

## TECHNICAL EXHIBIT 2

### WORKLOAD ESTIMATES

THERE MUST BE A SPECIFIC WORKLOAD ESTIMATE FOR ALL OUTPUT TYPE SERVICES CONTAINED IN THE PWS. SUBCATEGORIES OF WORK TO BE ACCOMPLISHED MUST BE DETAILED UNDER THE MAJOR CATEGORY HEADING. IN EACH WORKLOAD ESTIMATE, STATE THE SERVICE, QUANTITY, AND FREQUENCY OF EACH SERVICE. INCLUDE EMERGENCY OR SPECIAL EVENT WORKLOAD ESTIMATES UNDER A MAJOR CATEGORY HEADING.

## TECHNICAL EXHIBIT 3

### MAPS AND WORK AREA LAYOUTS

INCLUDE MAPS AND DRAWINGS OF THE CONTRACTOR'S AREA OF RESPONSIBILITY BOTH ON AND OFF THE INSTALLATION AND WORK AREA LAYOUTS, ETC.

## TECHNICAL EXHIBIT 4

### REQUIRED REPORTS

LIST ON DD FORM 1423 ALL REPORTS REQUIRED AND SPECIFY FORMATS REQUIRED ON DD FORM 1664 (SEE AF SUP 1 to DODI 5000.2 FOR INSTRUCTIONS ON HOW TO COMPLETE FORMS.). WHEN FEASIBLE, ALLOW CONTRACTOR TO DETERMINE REPORT FORMATS. INCLUDE DD FORMS 1423 AND DD FORMS 1664 AS TECHNICAL EXHIBITS.

## TECHNICAL EXHIBIT 5a

### GOVERNMENT-FURNISHED FACILITIES

LIST THE BUILDING NUMBER AND LOCATION, TYPE OF FACILITY, AND AMOUNT OF SPACE PROVIDED. PROVIDE FLOOR PLAN IN TECHNICAL EXHIBIT 3.

**TECHNICAL EXHIBIT 5b****GOVERNMENT-FURNISHED EQUIPMENT**

NAME/MODEL	SERIAL NUMBER	STOCK NUMBER	QUANTITY
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**TECHNICAL EXHIBIT 5c****GOVERNMENT-FURNISHED MATERIAL**

<u>NSN</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
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**TECHNICAL EXHIBIT 6****QUALITY STANDARDS**

IF SPECIFIC QUALITY STANDARDS CANNOT EASILY BE INCLUDED IN THE BODY OF THE PWS OR IN THE PRS (BECAUSE OF COMPLEXITY AND SPACE LIMITATIONS), DEFINE THEM HERE. STANDARDS MUST BE SPECIFIC AND INCLUDE THE FACTORS THAT DEFINE OR DETAIL ACCEPTABLE PERFORMANCE. THIS TECHNICAL EXHIBIT SHOULD BE REFERENCED IN THE BODY OF THE PWS AND IN THE PRS FOR THOSE STANDARDS CONTAINED HEREIN.

**TECHNICAL EXHIBIT 7**

**PERFORMANCE REQUIREMENTS TABLE  
FOR USE WHEN  
SURVEILLANCE IS BY RANDOM SAMPLING**

**I. PERFORMANCE REQUIREMENTS:**

<u>MAXIMUM ERROR RATE</u>	<u>PERFORMANCE REQUIREMENT</u>
1%	0
5%	1
10%	2
15%	3

**II. SAMPLE SIZE FOR UNKNOWN LOT SIZES OR LOTS GREATER THAN 1000:**

<u>MAXIMUM ERROR RATE</u>	<u>SAMPLE SIZE</u>
1%	67
5%	33
10%	27
15%	25

**III. SAMPLE SIZE FORMULA FOR LOTS LESS THAN 1000:**

$$\text{Sample Size} = \frac{\text{Performance Requirement} + 0.67}{\text{Maximum Error Rate} + 1/(3 \text{ times the Lot Size})}$$

### INTERVAL TECHNIQUE FOR RANDOM SAMPLING

A3.1. The following is extracted from Audit Agency Regulation 175-116, *Statistical Sampling for Auditors*, dated 28 May 1990:

"2-3 Random Sampling - When and How.

a. One of the rules of statistical sampling is the sample must be selected at random from the population. The definition of randomness is very specific or vague, depending upon who is giving the definition and for what purpose. Randomness will not be defined here, but will be left to the theorists and to the definition of terms in attachment 1. The objective of this section is to define when and how a random sample should be used in audit work. For the purposes of auditing, a random sample must be utilized when the population is not thoroughly mixed. For example, one might suspect that a population of travel vouchers would be batched. Closer scrutiny might reveal several hundred permanent change of station vouchers batched together in sequence, followed by 50 temporary duty vouchers, then a few dependent travel vouchers. If it is known or suspected that a population is "batched" to a great extent, then one must use a random sample to select the items from a population. In some cases, it may be difficult to determine if batching does occur, but there are several techniques one may use to determine this characteristic. General knowledge of an area is most helpful; while on the other hand, one may ask a few questions about a population from the people that are processing the documents, vouchers, etc. Through a query of this type, one may discover that all documents of the same type are processed by the same person who assigns a consecutive serial number. On another occasion, one may find that incoming documents are processed on a rotational basis by the personnel located within an area. The primary consideration is that an auditor must learn as much about population characteristics to be audited prior to adopting any selecting procedure. The case of a thoroughly mixed population is discussed in paragraph 2.4.

b. The best way to select a sample at random is through the use of a table of random numbers. There are many tables available to select random numbers; however, the AFAA has a random number selection routine on the computer software program called RANDOM, which is available within each audit office. (See paragraph 1.2.)

2-4 Systematic Sampling - When and How.

a. In order to apply systematic sampling procedures there is also a rule that must be satisfied before systematic sampling can be utilized. One may select a sample using the interval technique of the population is thoroughly mixed. It is difficult to determine which situations in a population will allow the use of systematic selection procedures. The best advice is to determine some of the characteristics of the population. If one can establish that the ordering of the population does not follow any specific trend, with respect to the trait that is being examined, or at worst, a mild stratification, then systematic selection procedures may be utilized. One technique of determining a population mixture is to determine the order in which the records or items were initially processed. Based on this information, it becomes a judgmental item as to whether any ordering will affect the sample results. Essentially, one can be sure that if no significant batching is found in a population, then systematic sampling procedures may be utilized. However, if significant batching of a population is found, refer to paragraph 2.3.

b. To select a systematic sample of  $n$  units, take a unit at random from the first  $k$  units and every  $k$ th unit thereafter. Simply stated, a systematic sample is one where the sample items are selected from a fixed interval after first determining a random start point within the first interval. For example, suppose we have determined that a systematic sample of 90 is appropriate for a population size of 1080. Divide 1080 by 90 to determine the sampling interval of 12. Selecting 1 unit out of every 12 will yield a sample of 90 items. Thus, select a number at random between 01 and 12. If the selected random number is 07, then the sample items are every 12th item, beginning 07, 19, 31, 43, 55, 67, etc. This procedure is a definite advantage over random sampling techniques due to the ease in which the items can be sampled."

### USE OF RANDOM NUMBER TABLES

A4.1. To use table A4.1, this attachment, begin by picking at random a group of numbers on any page of the table. This is usually done by closing the eyes and pointing with a pencil or finger to some initial group.

A4.2. To identify additional random numbers, follow a pattern. Use various patterns for selection of individual samples. For example, go along a given line to its end and then along the next line to its end and so on through the table until enough numbers have been selected or until the table ends. If the table ends and you still need more numbers, go back to the beginning of the table and continue using the same pattern. Examples of alternate patterns are to go down columns or to go diagonally across the table.

A4.3. When the chosen pattern results in selection of a number that is outside the lot size range, do not take that number. Go on to the next number in the pattern for the next sample. For example, if you were identifying random numbers for sampling of 100 work orders numbered between 200 and 300 and the number randomly selected from the table was 199, simply go to the next number in the pattern until you get a number between 200 and 300.

A4.4. In most cases, the sample being selected will be represented by a number of less than 5 digits; for example, 3-digit work order numbers, building numbers, or days of the month. In those cases, simply use only the number of digits from the numbers in the random number tables as are required. For example, if you were selecting days of the month as a sample, use only the last 2 digits of the numbers selected. For workorders numbered with 3 digits, use the last three or the first three. It makes no difference which positions you use, however, once you begin selecting numbers, stay with the same sequence until all required numbers are drawn.

A4.5. It is very important to document your selections and how they were made. Document your patterns, starting and ending points, and numbers drawn and file it with the official QAE files. This information may be used at a later date to substantiate the government's position on a contractor's claim or protest action.



Table A4.1. Random Number Table.

Line	Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1		10460	15011	01536	02011	81647	91646	69179	14194	62590	36207	20969	99570	91291	90700
2		22368	46573	25595	85393	30995	89198	27982	53402	93965	34095	52666	19174	39615	99505
3		24130	48360	22527	97265	76393	64809	15179	24830	49340	32081	30680	19655	63348	58629
4		42167	93093	06243	61680	07856	16376	39440	53537	71341	57004	00849	74917	97758	16379
5		37570	39975	81837	16656	06121	91782	60468	81305	49684	60672	14110	06927	01263	54613
6		77921	06907	11008	42751	27756	53498	18602	70659	90655	15053	21916	81825	44394	42880
7		99562	72905	56420	69994	98872	31016	71194	18738	44013	48840	63213	21069	10634	12952
8		96301	91977	05463	07972	18876	20922	94595	56869	69014	60045	18425	84903	42508	32307
9		89579	14342	63661	10281	17453	18103	57740	84378	25331	12566	58678	44947	05585	56941
10		85475	36857	53342	53988	53060	59533	38867	62300	08158	17983	16439	11458	18593	64952
11		28918	69578	88231	33276	70997	79936	56865	05859	90106	31595	01547	85590	91610	78188
12		63553	40961	48235	03427	49626	69445	18663	72695	52180	20847	12234	90511	33703	90322
13		09429	93969	52636	92737	88974	33488	36320	17617	30015	08272	84115	27156	30613	74952
14		10365	61129	87529	85689	48237	52267	67689	93394	01511	26358	85104	20285	29975	89868
15		07119	97336	71048	08178	77233	13916	47564	81056	97735	85677	29372	74461	28551	90707
16		51085	12765	51821	51259	77452	16308	60756	92144	49442	53900	70960	63990	75601	40719
17		02368	21382	62404	60268	89368	19885	55322	44819	01188	65255	64835	44919	05944	55157
18		01011	54092	33362	94904	31273	04146	18594	29852	71585	85030	51132	01915	92747	64951
19		52162	53916	46369	58586	23216	14513	83149	98736	23495	64350	94738	17752	35156	35749
20		07056	97628	33787	09998	42698	06691	76988	13602	51851	46104	88916	19509	25625	58104
21		48663	91245	85826	14346	09172	30168	90229	04734	59193	22178	30421	61666	99904	32812
22		54164	58492	22421	74103	47070	25306	76468	26384	58151	06646	21524	15227	96909	44592
23		32639	32363	05597	24200	13363	38005	94342	28728	35806	06912	17012	64161	18296	22851
24		29334	27001	87637	87308	58731	00256	45834	15398	46557	41135	10367	07684	36188	18510
25		02488	33062	28834	07351	19731	92420	60952	61280	50001	67658	32586	86679	50720	94953
26		81525	72295	04839	96423	24878	82651	66566	14778	76797	14780	13300	87074	79666	95725
27		29676	20591	68086	26432	46901	20849	89768	81536	86645	12659	92259	57102	80428	25280
28		00742	57392	39064	66432	84673	40027	32832	61362	98947	96067	64760	64584	96096	98253
29		05366	04213	25669	26422	44407	44048	37937	63904	45766	66134	75470	66520	34693	90449
30		91921	26418	64117	94305	26776	25940	39972	22209	71500	64568	91402	42416	07844	69618
31		00582	04711	87917	77341	42206	35126	74087	99547	81817	42607	43808	76655	62028	76630
32		00725	69884	62797	56170	86324	88072	76222	36086	84637	93161	76038	65855	77919	88006
33		69011	65795	95876	55293	18988	27354	26575	08625	40801	59920	29841	80150	12777	48501
34		25976	57948	29888	88604	67917	48708	18912	82271	65424	69774	33611	54262	85963	03547
35		09763	83473	73577	12908	30883	18317	28290	35797	05998	41688	34952	37888	38917	88050
36		91567	42595	27958	30134	04024	86385	29880	99730	55536	84855	29080	09250	79656	73211
37		17955	56349	90999	49127	20044	59931	06115	20542	18059	02008	73708	83517	36103	42791
38		46503	18584	18845	49618	02304	51038	20655	58727	28168	15475	56942	53389	20562	87338
39		92157	89634	94824	78171	84610	82834	09922	25417	44137	48413	25555	21246	35509	20468
40		14577	62765	35605	81263	39667	47358	56873	56307	61607	49518	89686	20103	77490	18062
41		98427	07523	33362	64270	01638	92477	66969	98420	04880	45585	46565	04102	46880	45709
42		34914	63976	88720	82765	34476	17032	87589	40836	32427	70002	70663	88863	77775	69348
43		70060	28277	39475	46473	23219	53416	94970	25832	69975	94884	19661	72828	00102	66794
44		53976	54914	06990	67245	68350	82948	11398	42878	80287	88267	47363	46634	06541	97809
45		76072	29515	40980	07391	58745	25774	22987	80059	39911	96189	41151	14222	60697	59583
46		90725	52210	83974	29992	65831	38857	50490	83765	55657	14361	31720	57375	56228	41546
47		64364	67412	33339	31926	14883	24413	59744	92351	97473	89286	35931	04110	23726	51900
48		08962	00358	31662	25388	61642	34072	81249	35648	56891	69352	48373	45578	78547	81788
49		95012	68379	93526	70765	10592	04542	76463	54328	02349	17247	28865	14777	62730	92277
50		15664	10493	20492	38391	91132	21999	59516	81652	27195	48223	46751	22923	32261	85653

Table A4.1. Continued.

Line	Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
51		16408	81889	04153	53381	79401	21438	83035	92350	36693	31238	59649	91754	72772	02338
52		18629	81953	05520	91962	04739	13092	97662	24822	94730	06496	38090	04822	86774	98289
53		73115	35101	47498	87637	99016	71060	88824	71013	18735	20286	23183	72924	35165	43040
54		57491	16703	23167	49323	45021	33132	12544	41035	80780	45393	44812	12515	98931	91202
55		30405	83946	23792	14422	15059	45799	22716	19792	09983	74353	68668	30429	70735	25499
56		16631	35006	85900	98275	32388	52390	16815	69298	82732	38480	73817	32523	41961	44437
57		96773	20206	42559	78985	05300	22164	24369	54224	35083	19687	11052	91491	60383	19746
58		38935	64202	14349	82674	66523	44133	00697	35552	35970	19124	63318	29686	03387	59846
59		31624	76384	17403	53363	44167	64486	64758	75366	76554	31601	12614	33072	60332	92385
60		78919	19474	23632	27889	47914	02584	37680	20801	72152	39339	34806	08930	85001	87820
61		03931	33309	57047	74211	63445	17361	62825	39908	05607	91282	68833	25570	38818	46920
62		74426	33278	43972	10119	89917	15665	52872	73823	73144	58668	88970	74492	51805	99378
63		09066	00903	20795	95452	92648	45454	09552	88815	16583	51125	79375	97596	16296	66092
64		42238	12426	87025	14267	20979	04508	64535	31355	86064	29472	47689	05974	52468	16834
65		16153	08002	26504	41744	81959	65642	74240	56302	00033	67107	77510	70625	26725	34191
66		21457	40742	29820	96783	29400	21840	15035	34537	33310	06116	95240	15957	16572	06004
67		21581	57802	02050	89728	17937	37621	47075	42080	97403	48626	68995	43805	33386	21597
68		55612	78095	83197	33732	05810	24813	86902	60397	16489	03264	88525	42786	05269	92532
69		44657	66999	99324	51281	84463	60563	79312	93454	68876	25471	93911	25650	12682	73572
70		91340	84979	46949	81973	37949	61023	43997	15263	80644	43942	89203	71795	99533	50501
71		91227	21199	31935	27022	84067	05462	35216	14486	29891	68607	41867	14951	91696	85065
72		50001	38140	66321	19924	73163	09538	12151	06878	91903	18749	34405	56087	82790	70925
73		65390	05224	72958	28609	81406	39147	25549	48542	42627	45233	57202	94617	23772	07896
74		27504	96131	83944	41575	18573	08619	64482	73923	36152	05184	94142	25299	84387	34925
75		37169	94851	39117	89632	00959	16487	65536	49071	39782	17095	02330	74301	00275	48280
76		11508	70225	51111	38351	19444	66499	71945	05422	13442	78675	84081	66938	93654	59894
77		37449	30362	06694	54690	04052	53115	62757	95348	78662	11163	81651	50245	34971	52924
78		46515	70331	85922	38329	57015	15765	97161	17869	45349	61796	66345	81073	49106	79860
79		30986	81223	42416	58353	21532	30502	32305	86482	05174	61796	54339	58861	74818	46942
80		63798	64995	46583	09785	44160	78128	83991	42865	92520	07901	80377	35909	81250	54238
81		82486	84846	99254	67632	43218	50076	21361	64816	51202	88124	41870	52689	51275	83556
82		21885	32906	92431	09060	64297	51674	64126	62570	26123	05155	59194	52799	28225	85762
83		60336	98782	07408	53458	13564	59089	26445	29789	85205	41001	12535	12133	14645	23541
84		43937	46891	24010	25560	86355	33941	25786	54990	71899	15475	95434	98227	21824	19585
85		97656	63175	89303	16275	07100	92063	21942	18611	47348	20203	18534	03862	78095	50136
86		03299	01221	05418	38982	55758	92237	26759	86367	21216	98442	08303	56613	91511	75928
87		79626	06486	03574	17668	07785	76020	79924	25651	83325	88428	85076	72811	22717	50585
88		85636	68335	47539	03129	65651	11977	02510	26113	99447	68645	34327	15152	55230	93448
89		18039	14367	61337	06177	12143	46609	32989	74014	64708	00533	35398	58408	13261	47908
90		08362	15656	60627	36478	65648	16764	53412	09013	07832	41574	17639	62163	60859	75567
91		79556	29068	04142	16268	15387	12856	66227	38358	22478	73373	88732	09443	82558	05250
92		92608	82674	27072	32534	17075	27698	98204	63863	11951	34648	88022	56148	34925	57031
93		23982	25835	40055	67006	12293	02753	14827	23235	35071	99704	37543	11601	35503	85171
94		09915	96306	05908	97901	28395	14186	00821	80703	70426	75647	76310	88717	37890	40129
95		59037	33300	26695	62247	69927	76123	50842	43834	86654	70959	79725	93872	28117	19233
96		42488	78077	69888	61657	34136	79180	97526	43092	04098	73571	80799	76536	71255	64239
97		46764	86273	63003	93017	31204	36692	40202	35275	57306	55543	53203	16098	47625	88684
98		03237	45430	55417	63282	90816	17349	88298	90183	36600	78406	06216	95787	42579	90730
99		86591	81482	52667	61582	14972	90053	89534	76036	49199	43716	97548	04379	46370	28672
100		38534	01715	94964	87288	65680	43772	39560	12918	86537	62738	19636	51132	25739	56947

Table A4.1.  
Continued.

Line	Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
101		13284	16834	74151	92027	24670	36665	00770	22878	02179	51602	07270	76517	97275	45960
102		21224	00370	30420	03883	94648	89428	41583	17564	27395	63904	41548	49197	82277	24120
103		99052	47887	81085	64933	66279	80432	65793	83287	34142	13241	30590	97760	35848	91983
104		00199	50993	98603	38452	87890	94624	69721	57484	67501	77638	44331	11257	71131	11059
105		60578	06483	28733	37867	07936	98710	98539	27186	31237	80612	44488	97819	70401	95419
106		91240	18312	17441	01929	18163	69201	31211	54288	39296	37318	65724	90401	79017	62077
107		97458	14229	12063	59611	32249	90466	33216	19358	02591	54263	88449	01912	07436	50813
108		35249	38646	34475	72417	60514	69257	12489	51924	86871	92446	36607	11458	30440	52639
109		38980	46600	11759	11900	46743	27860	77940	39298	97838	95145	32378	68038	89351	37005
110		10750	52745	38749	87365	58959	53731	89295	59062	39404	13198	59960	70408	29812	83126
111		36247	27850	73958	20673	37800	63835	71051	84724	52492	22342	78071	17456	96104	18327
112		70994	66986	99744	72438	01174	42159	11392	20724	54322	36923	70009	23233	65438	59685
113		99638	94702	11463	18148	81386	80431	90628	52506	02016	85151	88598	47821	00265	82525
114		72055	15774	43857	99805	10419	76939	25993	03544	21560	83471	43989	98770	22965	44247
115		24038	65541	85788	55835	38835	59399	13790	35112	01324	39520	76210	22467	83275	32286
116		74976	14631	35908	28221	39470	91548	12854	30166	09073	75887	36782	00268	97121	57676
117		35553	71628	70189	26436	63407	91178	90348	55359	80392	41012	36270	77786	89578	21059
118		35676	12797	51434	82976	42010	26344	92920	92155	58807	54644	58581	95331	78629	73344
119		74815	67523	72985	23183	02446	63594	98924	20633	58842	85961	07648	70164	34994	67662
120		45246	88048	65173	50989	91060	89894	36036	32819	68559	99221	49475	50558	34698	71800
121		76509	47069	86378	41797	11910	49672	88576	97966	32466	10083	54728	81972	58975	30761
122		19689	90332	04315	21358	97248	11188	39062	63312	52490	07349	79178	33692	57352	72862
123		42751	35318	97513	61537	54955	08159	00337	80778	27507	95478	21252	12746	37554	97775
124		11946	22681	45045	13964	57517	59419	58045	44067	58716	58840	45557	96345	33271	53464
125		96518	48688	20996	11090	48396	57177	83867	86464	14342	21545	46717	72364	86954	55580
126		35726	58643	76869	04622	39098	36083	72505	92265	23107	60278	05822	46760	44294	07672
127		39737	42750	48968	70536	84864	64952	38404	94317	65402	13589	01055	79044	19308	83623
128		97-25	66492	56177	04049	80312	48028	26408	43591	75528	65341	49044	95495	81256	53214
129		62814	08075	09788	56350	76787	51591	54509	49295	85830	59860	30883	89660	96142	18354
130		25578	22950	15227	83291	41737	79599	96191	71845	86899	70694	24290	01551	80092	82118
131		68763	69576	88991	49662	46704	63362	56625	00481	73321	91427	15264	06969	57048	54149
132		17900	00813	64361	60725	88974	61005	99709	30666	26451	11528	44323	34778	60342	60388
133		71944	60227	64551	71109	05624	43836	58254	26160	32116	63403	35404	57146	10909	07346
134		54684	93691	85132	64399	29182	44324	14491	55226	76793	34107	30374	48429	51376	09559
135		25946	27623	11258	65204	52832	50880	22273	05554	99521	73791	85744	29276	70326	60251
136		01353	39318	44961	44972	91766	90262	56073	06606	51826	18893	83448	31915	97764	75091
137		99083	88191	27662	99113	57174	35571	99884	13951	71057	53961	61448	74909	07322	80960
138		52021	45406	37945	75234	24327	86978	22644	87779	23753	99926	63898	54886	18051	96314
139		78755	47744	43776	83090	03225	14281	83637	55984	13300	52212	58781	14905	46502	04472
140		25282	69106	59180	16257	22810	43609	12224	25643	89884	31149	85423	32581	34374	70873
141		11959	94202	02743	86847	79725	51811	12998	76844	05320	54236	53891	70226	38632	84776
142		11644	13792	98190	01424	30078	28197	55583	05197	47714	68440	22016	79204	06862	94451
143		06307	97912	68110	59812	95448	43244	31262	88880	13040	16458	43813	89416	42482	33939
144		76285	75714	89585	99296	52640	46518	55486	90754	88932	19937	57119	23251	55619	23679
145		55322	07598	39600	60866	63007	20007	66819	84164	61131	81429	60676	42807	78286	29015
146		78017	90928	90220	92503	83375	26986	74399	30885	88567	29169	72816	53357	15428	86932
147		44768	43342	20696	26331	43140	69744	82928	24988	94237	46138	77426	39039	55596	12655
148		25100	19336	14605	86603	51680	97678	24261	02464	86563	74812	60069	71674	15478	47642
149		83612	46623	62876	85197	07824	91392	58317	37726	84628	42221	10268	20692	15699	29167
150		41347	81666	82961	60413	71020	83658	0241	33322	66036	98712	46795	16308	28413	05417

Table A4.1. Continued.

Line	Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
151		38128	51178	75096	13609	16110	73533	42564	59870	29399	67834	91055	89917	51096	89011
152		60950	00455	73254	96067	50717	13878	03216	78274	65863	37011	91283	33914	91303	49326
153		90524	17320	29832	96118	75792	25326	22940	24904	80523	38928	91374	55597	97567	38914
154		49897	18278	67160	39408	97056	43517	84426	59650	20247	19293	02019	14790	02852	05819
155		18494	99209	81060	19488	65596	59787	47939	91225	98768	43688	00438	05548	09443	82897
156		65373	72984	30171	37741	70203	94094	87261	30056	58124	70133	18936	02138	59372	09075
157		40653	12843	04213	70925	95360	55774	76439	61768	52817	81151	52188	31940	54273	49032
158		51638	22238	56344	44587	83231	50317	74541	07719	25472	41602	77318	15145	57515	07633
159		69742	99303	62578	83575	30337	07488	51941	84316	42067	49692	28616	29101	03013	73449
160		58012	74072	67488	74580	47992	69482	58624	17106	47538	13452	22620	24260	40155	74716
161		18348	19855	42887	08279	43206	47077	42637	45606	00011	20662	14642	49984	94509	56380
162		59614	09193	58064	29086	44385	45740	70752	05663	49081	26960	57454	99264	24142	74648
163		75688	28630	39210	52897	62748	72658	98059	67202	72789	01869	13496	14663	87645	89713
164		13941	77802	69101	70061	35460	34576	15412	81304	58757	35498	94830	75521	00603	97701
165		96656	86420	96475	86458	54463	96419	55417	41375	76886	19008	66877	35934	59801	00497
166		03363	82042	15942	14549	38324	87094	19069	67590	11087	68570	22591	65232	85915	91499
167		70366	08390	69155	25496	13240	57407	91407	49160	07379	34444	94567	66035	38918	65708
168		47870	36605	12927	16043	53257	93796	52721	73120	48025	76074	95605	67422	41646	14557
169		79504	77606	22761	30518	28373	73898	30550	76684	77366	32276	04690	61667	64798	66276
170		46967	74841	50923	15339	37755	98995	40162	89561	69199	42257	11647	47603	48779	97907
171		14558	50769	38444	59030	87516	48193	02945	00922	48189	04724	21263	20892	92955	90251
172		12440	25057	01132	38611	28135	68089	10954	10097	54243	06460	50856	65435	79377	53890
173		32293	29938	68653	10497	98919	46587	77701	99119	93165	67788	17638	23097	21468	36992
174		10640	21875	72462	77981	56550	55999	87310	69643	45124	00349	25748	00844	96831	30651
175		47615	23169	39571	56972	20628	21788	51736	33133	72696	32605	41569	76148	91544	21121
176		16948	11126	71624	72754	49084	96303	27630	45817	67867	18062	87453	17226	72904	71474
177		21258	61092	66634	70335	92448	17354	83432	49608	66520	06442	59664	20420	39201	69549
178		15072	48853	15178	30730	47481	48490	41436	25015	49932	20474	53821	51015	79841	32405
179		99154	57412	09858	65671	70655	71479	63520	31357	56968	06729	34465	70685	04184	25250
180		08759	61089	23706	32994	35426	36666	63988	98844	37533	08269	27021	45886	22835	78451
181		67323	57839	61114	62192	47547	58023	64630	34886	98777	75442	95592	06141	45096	73117
182		09255	13986	84834	20764	72206	89393	34548	93438	88730	61805	78955	18952	46436	58740
183		36304	74712	00374	10107	85061	69228	81969	92216	03568	39630	81869	52824	50937	27954
184		15884	67429	86612	47367	10242	44880	12060	44309	46629	55105	66793	93173	00480	13311
185		18745	38031	35303	08134	33925	03004	59929	95418	04917	57596	24878	61733	92834	64454
186		72934	40086	88292	65728	38300	42323	64068	98373	48971	09049	59943	36538	05976	82118
187		17626	02944	20910	57662	80181	38579	24580	90529	52303	50436	29401	57824	86039	81062
188		27117	61399	50967	41399	81636	16663	15634	79717	94696	59240	25543	97989	63306	90946
189		93995	18678	90012	63645	85701	85269	62263	68331	00389	72571	15210	20769	44686	96176
190		67392	89421	09623	80725	62620	84162	87368	29560	00519	84545	08004	24526	41252	14521
191		04910	12261	37566	80016	21245	69377	50420	85658	55263	68667	78770	04533	14513	18099
192		81453	20283	79929	59839	23875	13245	46808	74124	74703	35769	95588	21014	37078	39170
193		19480	75790	48539	83703	15537	48885	02861	86587	74539	65227	90799	58789	96257	02708
194		21456	13162	74608	81011	55512	07481	93551	72189	76261	91206	89941	15138	37738	59284
195		89406	20912	46189	76376	25538	87212	20748	12831	57166	35026	16817	79121	18929	40628
196		09866	07414	55977	16419	01101	69343	13305	94302	80703	57910	36933	57771	42546	03003
197		86541	24681	23421	13521	28000	94917	07423	57523	97234	63951	42876	46829	09781	58160
198		10414	96941	06205	72222	57167	83902	07460	69507	10600	08858	07685	44472	64220	27040
199		49942	06683	41479	58982	56288	42853	92196	20532	62045	78812	35895	51851	83534	10689
200		23995	68882	42291	23374	24299	27024	67460	94703	40937	16961	26053	78749	46704	21983

Table A4.1. Continued.

Line	Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
201		78994	36244	02673	25475	84953	61793	50243	63432	69309	80308	49977	18075	43827	08266
202		04909	58485	70686	93930	34880	73059	06823	80257	44193	08337	47655	75932	29209	41954
203		46582	73570	33004	51795	86477	46736	60460	70345	37322	19987	67143	41129	89514	46892
204		29242	89792	88634	60285	07190	07795	27011	85941	01852	43096	31173	43730	48505	17958
205		68104	81339	97090	20601	78940	20228	22803	96070	10251	62711	66200	74330	13820	18966
206		17156	02182	82504	19880	93747	80910	78260	25136	62018	62919	73801	57195	83457	70597
207		50711	94789	07171	02103	99057	98775	37997	18325	88281	61091	97889	79977	04544	72963
208		39449	52409	75095	77720	39729	03205	09313	43545	43786	70443	41350	73369	42405	80516
209		75629	82729	76916	72657	58992	32756	01154	84890	04107	17469	69346	68651	97433	89491
210		01020	55151	36132	51971	32155	60735	64867	35424	25257	93844	39928	52519	34368	02114
211		08337	89989	24160	08618	66798	25889	52860	57375	52815	43539	18072	44270	27309	56535
212		76829	47229	19706	30094	69430	92399	98749	22081	52564	90431	35208	40323	87505	10227
213		39708	30641	21267	56501	95182	72442	21445	17276	90344	33199	02522	97883	09515	65930
214		89836	55817	56747	75195	06818	83043	47403	58266	52630	75573	91088	41118	27195	40650
215		25903	61370	66081	54076	67442	52964	23823	02718	28786	06121	29680	55295	67086	57574
216		71345	03422	01015	68025	19703	77313	04555	83425	46763	95315	23150	15116	18017	42730
217		61454	92263	14647	08473	34124	10740	40839	05620	62418	73374	92577	06755	21856	56272
218		80376	08909	30470	40200	46558	61742	11643	92121	22294	26648	69676	46198	00331	85186
219		45144	54373	05505	90074	24783	86299	20900	15144	26506	53770	76431	23861	71208	80694
220		12191	88527	58852	51175	11534	87218	04876	65584	78465	82182	03412	13217	14313	70593
221		62936	59120	73957	35969	21598	47287	39394	08778	38036	30140	89117	32054	44603	61849
222		31588	96798	43668	12611	01714	77266	55079	24690	84716	77732	35363	85525	17015	56344
223		20787	96048	84726	17512	39450	43618	30629	24356	05294	34236	65299	36922	46995	65765
224		45603	00745	84635	43079	52724	14262	05750	89373	79088	38088	65082	92504	80545	03090
225		31606	64782	34027	56734	09365	20008	93559	78384	99219	61747	96111	86965	33233	29812
226		10452	33074	76718	99556	16026	00013	78411	95107	10786	44886	44612	06830	27848	87597
227		37016	64633	67301	50949	91298	74968	73631	57397	08632	04762	39328	34926	07403	60916
228		66725	97865	25409	37498	00816	99262	14471	10232	19035	21695	07540	96447	20743	92472
229		07380	74438	82120	17890	40963	55757	13492	68294	87170	49468	40164	13374	23021	17006
230		71621	57688	58256	47702	74724	89419	08025	68519	95138	54788	32999	34374	05780	17506
231		03466	13263	23917	20417	11315	52805	33072	07723	87876	75258	22709	99869	11609	46666
232		12692	32931	97387	34822	53775	91674	76549	37635	91118	31062	89441	31839	88614	78168
233		52192	30941	44998	17833	94563	23062	95725	38463	03665	49189	46359	37401	73407	61817
234		56691	72529	66063	73570	86860	68125	40436	31303	79330	59083	34862	00540	31734	75535
235		74952	43041	58869	15677	78598	43520	97521	83248	52173	17636	77106	01044	22990	74874
236		18752	43693	32867	53017	22661	39610	03796	02622	78267	24503	73518	76545	99088	08369
237		61691	04944	43111	28325	82319	85589	66048	98498	46941	81427	44447	70357	18864	15525
238		49197	63948	38947	60207	70667	39843	60607	15328	09528	17277	84278	04463	12188	35359
239		19436	87291	71684	74859	76501	93456	95714	92518	10683	75617	78841	25315	74041	71554
240		39143	64893	14606	13543	09621	68301	69817	52140	03976	48795	60266	99592	68334	18790
241		82244	67549	76491	09761	74494	91307	64222	66592	67270	38593	18094	95095	08649	25047
242		55847	56155	42878	23708	97999	40131	52360	90390	73108	40475	80487	07787	35238	50990
243		94095	95970	07826	25991	37584	56966	68623	83454	49461	97707	12479	25041	40565	18313
244		11751	69469	25521	44097	07511	88976	30122	67542	54825	03274	02765	67162	40312	76127
245		69902	08995	27821	11758	64989	61902	32121	28165	21326	97375	44801	66977	08232	06807
246		21850	25352	25556	92161	23592	43294	10479	37879	21825	11453	29584	70067	09471	16319
247		75850	46992	25165	55906	62339	88958	91717	15756	78817	35541	01177	06869	10543	57652
248		29648	22086	42581	85677	20251	39641	65786	80689	49066	14456	91681	69371	18292	39377
249		82740	28443	42734	25518	82827	35825	90288	32911	79666	52959	01475	83321	24991	80102
250		36842	42092	52075	83926	42875	71500	69216	01350	92846	84792	87455	06842	22422	77379

Table A4.1. Continued.

Line	Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
251		89429	26726	15563	94972	78739	04419	60523	31022	23728	37647	16476	11170	68376	56874
252		43427	25412	25587	21276	44426	17369	29010	45337	90245	92053	41447	14897	18753	68291
253		58575	81958	51846	02676	67781	95137	88430	78260	66962	31812	12759	06427	40337	50115
254		61888	71246	24246	23487	78639	92006	63846	92263	33212	26516	93662	72399	88244	33922
255		73891	47025	40937	71907	26827	98865	38882	25757	26662	91441	89357	87803	61521	80600
256		40938	73894	40854	15997	55293	96033	31736	75068	91314	75293	04895	39355	54837	57203
257		98053	43567	17292	86908	71364	06089	92394	73691	57883	09983	35643	79309	53449	95334
258		59774	29138	46993	39836	99596	59050	25419	04130	54632	17223	94604	22973	97731	99476
259		09765	07548	63043	59782	81449	13652	94420	74460	46707	94303	85523	95244	70995	10742
260		38991	64502	24770	29209	82909	66610	84418	66214	26001	78685	69117	72446	79783	22305
261		25622	27100	56128	62145	82388	45197	97609	83942	01120	71717	32858	58679	97165	02810
262		31864	74120	66231	82306	91784	33177	17681	18963	07216	49288	43185	62797	00735	27085
263		81171	75639	60863	49562	28846	81581	10249	23190	63440	32357	16472	99013	24328	93670
264		69874	52803	28544	51569	56090	44558	42095	92311	57915	13368	13719	15833	38744	56065
265		27848	51107	05761	02159	53911	01952	59273	32250	39647	29908	49075	23061	07795	95047
266		69407	69736	75375	31488	67528	84234	76462	13628	21286	13736	67478	45218	27867	93049
267		29418	03091	06364	13151	40663	43633	87954	69800	24773	62596	52476	60631	50503	94116
268		38222	31231	79415	44558	62490	26936	49682	16307	98535	44822	99574	58487	85020	68881
269		94720	83796	93251	03568	62484	29140	14152	37044	90398	92042	35099	31640	99753	44409
270		45275	16852	02284	41361	73733	61486	33189	08907	41159	08147	15472	33250	17361	79961
271		97260	09552	82626	42915	45847	87401	13339	53850	34931	00602	75307	99708	77863	04924
272		01990	65259	60684	78175	43825	45211	86287	78190	02431	66251	74970	50246	23975	80597
273		24633	42314	81192	50253	67516	59076	92006	65676	87343	89231	15760	73706	69426	01979
274		98071	52677	74920	74461	52266	26967	68284	31612	40335	28865	98949	64492	96905	29184
275		34101	79442	88403	48541	13010	16596	72001	38546	76305	22119	82668	84017	44111	40302
276		77186	93967	25918	66403	73837	73445	86663	15929	08237	05647	15785	70444	58670	95967
277		23114	05481	42335	51396	60823	22680	50459	05429	35227	92559	24136	13126	22099	52388
278		59988	49944	41038	99977	16348	41119	51548	19511	90142	65604	16147	63445	60525	10480
279		11852	42254	82304	05588	75165	20179	94198	25700	33473	59554	30974	69973	57629	38550
280		59992	87922	56299	01700	07003	97507	69260	53349	86947	27517	80159	01899	46890	53850
281		42116	86593	22828	41422	18176	03250	06079	85467	32052	56922	96804	51060	33157	83948
282		39663	61401	21471	42702	70588	53144	27087	05591	57759	51394	98873	45625	61069	78783
283		53542	72009	96296	68908	58657	87117	21483	28879	20480	57309	95552	09826	79928	17141
284		25996	76108	98476	36397	89457	19577	65877	04802	61938	25032	09190	74932	36925	82686
285		91106	26450	14451	50328	29084	32332	08635	25192	31337	20249	95073	93800	70022	99968
286		37133	88924	27845	13024	90687	23726	11212	30414	42185	49224	46560	60447	24334	74866
287		13982	25736	10087	16762	08654	27250	79316	83848	38684	20552	44402	85153	94526	41256
288		26663	36187	81688	25005	46677	75851	73938	73044	05132	61204	90354	90296	03182	36672
289		62572	08275	16313	24936	81680	53829	40412	01479	24241	58488	65341	93414	07135	43446
290		65925	95455	08383	24643	72962	08172	37824	87587	40698	34964	50166	74756	77033	41501
291		97978	74676	08948	48919	51592	71196	48534	16955	25759	95645	03148	10646	15660	86520
292		01914	42524	67820	47986	91773	10383	89514	07557	02084	16736	39198	69697	62485	61938
293		68565	44811	39238	70394	78565	33539	56310	40809	63204	14479	19635	97299	66947	58010
294		54370	31672	03893	32423	54092	69375	63308	00016	26407	98287	22874	57545	72695	01604
295		79954	89601	23881	46951	69084	33477	87968	15639	82409	34125	36864	52112	27102	87334
296		58479	01059	44229	56975	06785	80930	26443	44892	77561	51123	34495	31376	06238	15973
297		38114	70330	42157	86699	46212	74692	92603	91306	58558	57280	50639	20563	71370	81487
298		29766	83482	66202	02488	72704	97821	70614	53616	39050	30355	18340	97298	41793	35185
299		31771	70640	34779	41831	33456	53194	19602	74194	61154	51774	76828	73794	54182	45264
300		77522	87188	83877	99067	83235	48662	31603	54829	54723	13177	15387	26073	68915	88415



Table A4.1. Continued.

Line	Col.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
301		64670	10396	82981	58320	71478	08143	48294	42631	45464	58092	14187	12271	98179	87812
302		25771	02205	73984	28436	88192	11470	11775	67385	66360	59884	93673	29948	66302	82227
303		27551	13537	54984	89406	88326	33993	92324	13249	35271	60400	70762	08343	76456	90068
304		91224	22417	44820	26189	57541	87558	45835	28461	54835	92411	44369	47512	49508	02811
305		75179	64320	71523	67868	38883	09674	27645	76240	47587	01677	38342	85590	12482	30749
306		64654	91085	65818	03313	39273	46384	66677	14148	87552	38383	67435	21072	63866	74644
307		98059	81123	67832	04102	66188	78200	67466	46043	65406	22834	08620	17509	51424	25187
308		38765	63585	18810	95805	11414	58096	00295	82626	42683	44518	12209	83245	53771	95469
309		01921	03564	71754	10213	80383	13473	94128	62199	59411	46782	62871	51149	87146	40129
310		16211	93671	27704	66778	96307	06732	63750	04191	40003	51653	54228	14916	05361	08884
311		70832	86076	61527	56123	48514	53935	86784	42351	67586	07432	61499	01773	97463	58815
312		22332	94265	67627	85815	00394	75271	98385	53697	56378	50592	77441	88505	89791	16331
313		81333	45965	64171	84367	15052	37965	03122	81914	69381	70034	92563	61804	58326	97895
314		39333	47453	66174	04546	10594	64271	61026	39471	55981	18628	67943	35599	37209	34061
315		29195	20825	50878	80273	26285	90070	79586	12449	77293	36577	59192	03658	90056	83145
316		74420	64037	06960	25109	08821	60143	34485	19257	29417	72713	72326	41572	41553	46946
317		22763	16508	24866	13177	07464	51730	65802	95718	28560	11332	74272	59189	53167	13133
318		72919	54618	40616	13287	51274	78491	53604	66742	97777	64468	98224	45485	17257	31561
319		92385	42402	15922	90033	21555	31647	22288	75692	20592	84620	58679	24587	83517	55327
320		85431	19857	97246	46118	71222	82744	67892	77155	10785	00344	19641	98279	18716	13895
321		40778	12451	14921	51464	45331	75822	46859	66829	35803	27645	76095	41535	25508	53066
322		88903	46592	60637	65231	08778	86813	47819	19218	46837	89671	77661	08518	85216	62664
323		29830	34899	85457	19548	83355	52479	77801	01596	48890	56104	68733	40830	58611	59181
324		22832	47422	08073	10107	46772	92299	42975	86376	27869	62954	07900	75918	51398	87598
325		75159	14809	11930	83531	51239	86298	72661	63015	98804	98491	99565	42801	71816	84000
326		99390	08217	56276	09263	82685	30451	25742	41105	74711	42007	02082	93025	86641	28952
327		68622	80897	08902	10867	91379	30068	84289	45020	92459	03831	08531	63496	98230	42884
328		92393	95901	41179	72129	72502	91-97	09488	84896	37720	68104	73817	67626	16221	63527
329		53122	66033	38229	51879	29925	45574	53938	72801	64067	76328	28941	43645	37181	95329
330		43251	11941	86631	93264	53433	70281	55000	24550	74731	32855	25399	95743	85393	20261
331		16613	24901	34866	75002	55163	68300	20070	36953	39378	71191	84510	47599	93608	24379
332		12010	60852	92603	70393	17989	95755	14672	58786	41996	02893	94163	36156	54203	94138
333		85528	97879	27814	08219	02908	71582	31439	00360	72264	87245	65903	42298	28061	81889
334		32590	55079	33556	83169	92087	77939	53792	78795	58159	86394	41749	91623	26973	81474
335		92934	30650	16449	15805	61551	38689	59179	85485	18537	70496	98694	19796	76804	03673
336		80614	10150	09389	61892	79477	14522	40270	45744	29682	29717	39590	10223	43049	78775
337		62398	12034	90764	52872	22285	50592	42505	80560	38213	18917	10016	03887	62589	15051
338		02222	46811	05145	67916	15184	02636	59078	57773	21259	86090	56705	65566	04487	95954
339		08490	31785	61664	61322	24149	21471	23328	03093	31266	14840	30703	01640	07874	16630
340		61187	73897	66168	12885	73191	89432	65414	41886	75911	35708	43208	59193	04727	31037
341		12324	61149	85643	64999	63738	46671	25408	69313	54455	04917	35047	09951	72776	84697
342		47635	42279	98620	70677	52386	50904	97403	03931	42090	28179	98028	47728	45696	74176
343		70965	00390	08878	15373	70276	71889	86953	37931	23286	20502	40100	22486	37323	35429
344		58764	15268	96814	54548	00042	19721	78869	85937	36639	29135	12633	67225	69588	74178
345		07429	05609	31207	50254	68389	07714	92268	64690	32823	60122	46213	05646	54742	98304
346		15665	28659	54952	53217	76898	88931	25786	55912	85269	29212	84976	08888	94332	58528
347		64208	53232	99459	43605	04563	48451	68154	49436	49991	66524	65133	66163	76766	26006
348		17952	73276	52567	48489	64264	24220	55498	97548	98437	26033	39026	17377	43519	27425
349		60531	43217	39999	38615	97195	76920	87688	99010	90189	12522	00675	01995	82781	95130
350		76692	39999	43254	68110	88053	88727	14187	98623	84225	78440	67082	37425	40559	16838